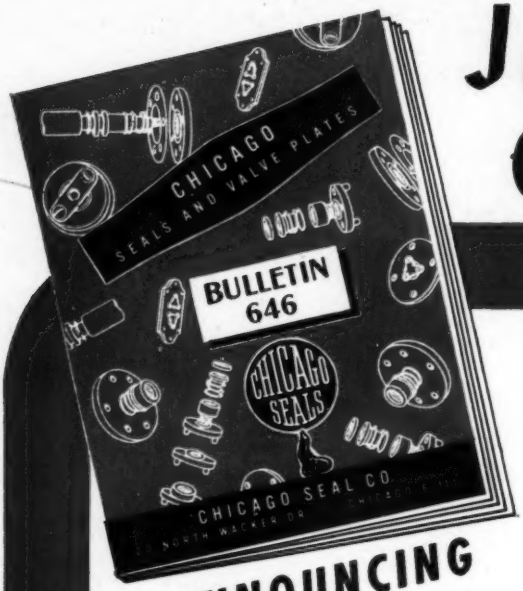
The Refrigeration Service Engineer

AUG 20 1946
DETROIT

VOL. 14 NO. 8 ★ ★ ★ AUGUST, 1946

WORKING WITH A MARINE TROUBLE SHOOTER •
GETTING DOWN TO BUSINESS • SUGGESTED
PHARMACEUTICAL AND BIOLOGICAL BOX •

Just Out!



ANNOUNCING
BULLETIN 646
41 NEW MODELS OF CHICAGO SEALS AND VALVE PLATES

A copy has already been mailed to every service organization on our list. If you did not receive a copy, or if you want additional copies, just drop us a post card now stating how many you need. We will gladly send them to you, FREE.

PERFECT BALANCE

CHICAGO SEAL CO.
20 N. WACKER DRIVE
CHICAGO 6, ILLINOIS

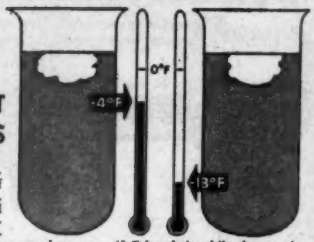
THE REFRIGERATION SERVICE ENGINEER. Nickerson & Collins Co., Publishers. 435 N. Waller Ave., Chicago 44, Ill. Published monthly. Vol. 14, No. 8, August, 1946. Entered as second class matter March 4, 1938, Chicago, Ill., under the Act of March 3, 1879. Subscription in the United States, $2.00 per year; all other countries, $3.00 per year.

The Ansul Research Staff

CONTINUING REPORT ON:

WAX SEPARATION FACTS

SAME OIL *but* DIFFERENT SHIPMENTS



An example of wax separation in two samples of presumably the same oil. Both tests were prepared with a 10 per cent concentration of oil in the refrigerant. Sample on the left separated wax at —4° Fahrenheit while the sample on the right did not separate wax until —13° Fahrenheit. In purchasing oils for low temperature refrigeration, specify wax separation temperature.

by the Ansul Wax-Oil Separation Method

● The temperature at which wax separates from an oil in oil-refrigerant mixture is influenced by three determining factors:

1. The *nature* of wax in the oil.
2. The *amount* of wax in the oil.
3. The *amount of oil* in the oil-refrigerant mixture.

Different oils possess different wax separation characteristics.

The nature and amount of wax content varies in different oils and may even vary in different samples of supposedly the same oil taken from different shipments.

These inconsistencies confuse the engineer in his efforts to select or recommend suitable lubrication for low temperature refrigerating systems and, to alleviate this condition, Ansul Chemical Co. is ready and anxious, at all times, to co-operate with refrigeration engineers and refrigeration service engineers.

REMEDIES

To eliminate wax trouble in expansion valves and coils:

1. Use an oil which separates little or no wax from its mixture with the refrigerant at the operating temperature of the valve.

2. Install an oil trap to cut down the amount of oil (and consequent wax) circulating with the refrigerant.

SEND FOR THIS BULLETIN

An informative reprint, *"The Separation of Wax from Oil-Refrigerant Mixtures,"* will be sent on request. No obligation. Just address . . .

*REG. U. S. PAT. OFF.

ANSUL WHOLESALERS are ready and equipped to render an intelligent, co-operative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

FOR EXAMPLE:

Samples of ice machine oils, submitted by users of Ansul Refrigerants to Ansul Wholesalers are tested by Ansul laboratories without charge by the Ansul Standard Wax-Oil Separation Method. This approved method, developed and standardized especially for use in connection with oils used in refrigerating systems, provides an accurate determination of the amount of wax which separates from an oil at low temperatures.

ANSUL REFRIGERANTS ARE AVAILABLE AT LEADING WHOLESALERS EVERYWHERE

ANSUL CHEMICAL COMPANY

REFRIGERATION DIVISION, MARINETTE, WISCONSIN

DISTRIBUTORS FOR KINETIC'S FREON 11, FREON 12, FREON 21, FREON 22 AND FREON 113

EMULATION IS THE SINCEREST TRIBUTE

"DETROIT"

PIONEERED

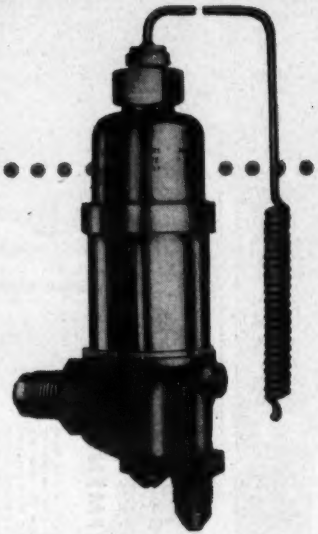
Gas Charging

13 YEARS AGO

"DETROIT"

NOW IT IS THE ACCEPTED STANDARD

OF THE REFRIGERATION INDUSTRY



No. 673 Thermostatic Expansion Valve

For many years the standard of the refrigeration industry. Orifice sizes 3/64" to 7/32" with capacities up to 3½ tons Freon 12 or Sulphur Dioxide and 6 tons Methyl.

The greatest tribute which can be paid to the soundness of a principle is its general endorsement by competition.

Thirteen years ago "Detroit" pioneered gas charging. Now, nearly all manufacturers of expansion valves have adopted gas charging, at least in principle. Gas charging has become the accepted standard of the refrigeration industry.

Gas charging puts a definite limit on maximum operating pressure—guards against motor overload. Often this makes possible use of a smaller motor, since it does not have to work against excessive pressure during the pull-down period. Gas charged valves balance the system more quickly when starting up, insuring fast, positive action.

"Detroit" Valves offer gas charging in the simplest, most effective form. A *single* efficient power element is used.

All "Detroit" Expansion Vaives are gas charged, which accounts for their wide popularity.

2122

No. 787 "Dura-fram" Expansion Valve

Representative of the "Detroit" large capacity line. No. 788 is rated 12 to 20 tons—No. 787—6 to 11 tons—No. 786—3 to 6 tons. Has external equalizer connection and can be furnished with No. 790 distributor with either 6, 12, or 18 openings (¼" each) for multiple distribution.

DETROIT LUBRICATOR COMPANY General Offices: 5900 TRUMBULL AVENUE DETROIT 8, MICHIGAN
Division of American Radiator & Standard Sanitary Corporation
Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG
DETROIT
"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • "Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators

A FILTERING ELEMENT IS NOT ONLY DESIRABLE BUT IMPERATIVE IN AN EFFICIENTLY OPERATING DEHYDRATOR

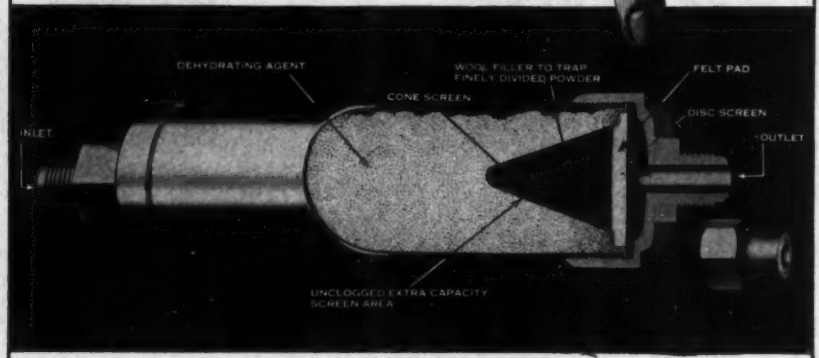
Mueller Brass Co. Filters and Driers feature the CONE SCREEN OUTLET, a specially designed filtering element that adds immeasurably to the life and efficiency of driers and filters.

Almost all crystalline dehydrating agents are subject to a certain amount of abrasion while a dehydrator is in service. Small portions of the dehydrating agent break down into very fine powder and crystals. Unless a well-designed filtering element is incorporated in a dehydrator, these fine crystals and powder have a tendency to clog the outlet filter, resulting in restriction to the flow of refrigerant.

With the MBCo. CONE SCREEN OUTLET, such finer crystals and powder are forced to the base of the cone, leaving the center and tip of the screen open to the free flow of refrigerant.

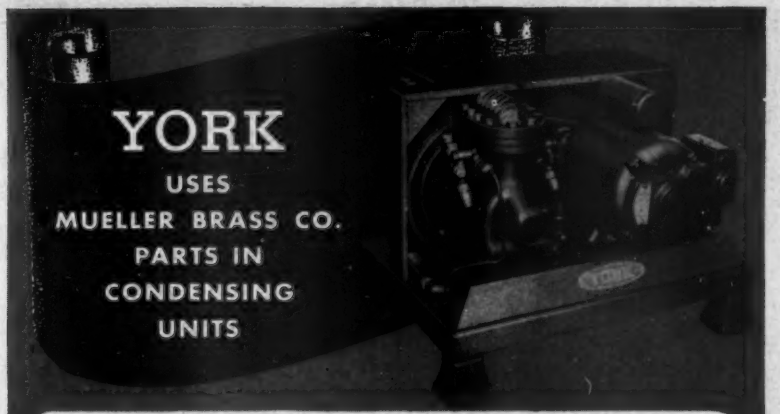
In addition, the cone screen is filled with pure wool which traps such particles that are sufficiently fine to pass through the screen mesh.

Particular attention has been paid to screen areas in Mueller Brass Co. Filters and Dehydrators, so that each size permits efficient passage to the maximum refrigerant volume that is used in a particular size refrigerant line.



Write for Catalog No. 2007

MUELLER BRASS CO.
PORT HURON, MICHIGAN



YORK

USES
MUELLER BRASS CO.
PARTS IN
CONDENSING
UNITS

YORK CORPORATION—YORK, PENNSYLVANIA

York "Freon-12" condensing units stand out as standard in the refrigeration industry because of certain built-in qualities of excellence. This art of building to meet the exacting demands of industry was not learned in a day — it was acquired only by systematic and cumulative progress . . . design . . . research and development. Compressor crankcase and cylinders are cast integrally from electric furnace nickel iron, having uniform high tensile strength and hardness...crankshaft is of special high grade die forging steel, hardened and micro-ground, force-feed lubricated. Other parts made of finest quality materials and York precision manufacture assure life-long economy and dependable performance.

THESE PRODUCTS MUST BE GOOD!

**BUILT-IN QUALITY . . .
TIME-TESTED PERFORMANCE**

Mueller Brass Co. Valves, Fittings and Accessories for mechanical refrigeration have a well-earned reputation for built-in quality and time-tested performance. They are manufactured specifically for mechanical refrigeration work. THEY ARE USED BY ALL OF THE LARGEST MANUFACTURERS THROUGHOUT THE UNITED STATES. Mueller Brass Co. products must be good!

MUELLER BRASS CO.
PORT HURON, MICHIGAN

On the shoulder of every cylinder of VIRGINIA Refrigerant* a date is stamped —the last hydrostatic test date of that cylinder. I. C. C. regulations require that cylinders be tested hydrostatically once every five years. Some cylinders show several test dates . . . always look for the latest. If this last date is more than five years old, the cylinder should not be used again until it is retested by certified equipment and approved for continued service.

Watch test dates on your cylinders. Ask your wholesaler about testing old cylinders.

"VSCO" on the shoulder identifies cylinders owned by Virginia Smelting Co.

***EXTRA DRY ESOTOO**
(*Liquid Sulfur Dioxide*)
V-METH-L
(*Methyl Chloride*)
Sold by wholesalers from coast to coast.

Distributors of "Freon" Refrigerants
11, 12, 21, 22 and 113

VIRGINIA
SMELTING COMPANY
WEST NORFOLK, VIRGINIA
NEW YORK • BOSTON • DETROIT

★ for the man who wants one flaring tool

for all sizes of tubing 1/8" to 3/4" O.D.

IMPERIAL

WIDE RANGE

FLARING TOOL

No. 375-FS Wide Range Flaring Tool complete in metal kit. Price each $6.25

Now, in one compact kit you can have a flaring tool that will flare 9 different sizes of soft copper, brass, or aluminum tubing.

This wide range flaring tool has two flaring bars and the popular slip-on yoke. One bar flares 1/8", 3/16", 1/4", 5/16", 3/8" and 7/16" O.D. sizes. Other bar flares 1/2", 5/8", and 3/4" O.D sizes. No need to have several tools to cover a complete size range.

Tool is very easy to handle and is designed for fast flaring. The self-centering slip-on yoke is quickly slipped over bar — a slight turn holds it in place for making accurate 45° SAE flared joints. Swivel cone adds to ease of operation.

Simply slip yoke over top of bar. Inside edges are slotted so that a slight turn holds it in place.

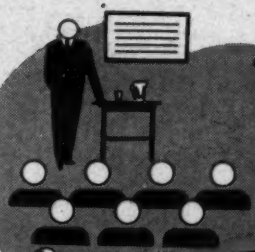
THE IMPERIAL BRASS MFG. COMPANY

534 S. Racine Ave., Chicago 7, Illinois

See your jobber

IMPERIAL

Fittings • Valves • Dehydrators • Filters • Floats • Charging Lines • Tools for Cutting, Flaring, Bending, Coiling, Pinch-off, Swedging.



Let's talk about Hot Air!

THAWZONE DATA

It is difficult, if not impossible, to remove all traces of air from field-installed refrigerating systems, and from factory assembled units too. Residual air in a system in large amounts causes high head-pressure, but small amounts are not detectable by increased head-pressure. These smaller amounts, however, are the cause of serious trouble in refrigerating systems.

This air is hot air. It traps in the condenser, where it is held at temperatures up to 200° F. or higher. At these temperatures the oxygen of the air is very reactive. It is in contact with small amounts of oil as well as refrigerant, and oxidizes them to compounds known as organic peroxides and acids. These compounds are corrosive and attack metals and form sludges.

THAWZONE
PATENTED
The PIONEER FLUID DEHYDRANT

Entirely separate from its function as a moisture remover, THAWZONE is also a very effective oxygen scavenger. It not only has a catalytic effect in preventing oxidation of the oil —an inhibitor action—but it also effectively removes oxygen. THAWZONE "grabs" the oxygen before the oil does, and is converted to oil-soluble, non-corrosive, inert-reaction products of a type known chemically as aldol condensation products.

Many refrigeration troubles, commonly ascribed to moisture, are really due to air. THAWZONE effectiveness has helped refrigeration engineers for years.

ALSO MAKERS OF
TRACE
REFRIGERANT LEAK DETECTOR

HIGHSIDE CHEMICALS CO.
195 VERONA AVE. NEWARK 4, N. J.

Wire PEERLESS for *Fast Delivery!*

● One week delivery on PEERLESS Flash Coolers! That's a dream come true, made possible by the speed and thoroughness of our reconversion program. It's not only true of Flash Coolers, but also of Ice Cube Makers and Fin Coils. Better still, PEERLESS can now give immediate delivery on Expansion Valves and Capacity Boosters.

These products are all engineered to give the superior service which will make your installations make more customers for you. Think of PEERLESS and fast delivery when you need products in the refrigeration field.

SOLD THROUGH LEADING REFRIGERATION SUPPLY WHOLESALERS

FLASH COOLER

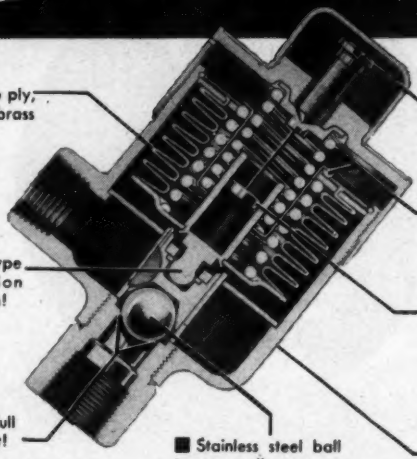
● PEERLESS Flash Coolers reduce operating costs through increased natural convection, circulating air for maximum efficiency in food preservation. Through highly polished aluminum louvres a constant volume of high humidity air drifts gently downward over stored products. Completely non-ferrous, having aluminum pans, hangers, fins, and plates, and electro tin-plated copper tubing, the PEERLESS Flash Cooler is a complete unit, quickly and easily installed.

PEERLESS of AMERICA, Inc.
333 N. Michigan Ave. Chicago 1, Illinois, U.S.A.

TAKE A GOOD LOOK AT

TEMPRITE'S

TWO TEMPERATURE VALVE!



■ Large area, two ply, extremely flexible brass bellows!

■ Universal joint type needle connection eliminates friction!

■ Large diameter, full opening gas outlet!

■ Stainless steel ball type needle assures perfect seating!

■ Easily operated adjusting screw!

■ Double spring for increased valve sensitivity!

■ Piston type "dash pot" eliminates valve chattering without reducing sensitivity!

■ Corrosion resistant forged brass body!

■ Sensitive operation, perfect sealing seat, large capacity and rugged construction! These are the features that have made Temprite Two Temperature Valves "tops" in the constant pressure valve field. Competitively priced in four standard sizes, they are available for immediate delivery. Write today for full particulars on these valves and also the complete line of Temprite quality products.

OTHER TEMPRITE QUALITY PRODUCTS

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous 80° 40° *Liquid Cooling Devices*

45 PIQUETTE AVENUE DETROIT 2, MICHIGAN

Balanced Performance

1 + 1 = 2
1 + 2 = 3
JUST SIMPLE ARITHMETIC

It takes "Just Simple Arithmetic" to figure out why that . . . by Comparison, they're buying PAR

PAR BY Lynch

Just add up the many outstanding features of Par Refrigeration Equipment and your answer is "Buy Par". There are models and sizes to fit all applications from 1/6 to 5 H.P. So see your Par Jobber today or write to us for Par Refrigeration catalog R-97.

PAR—Condensing Unit Line sold exclusively through Franchised Refrigeration Equipment Wholesalers!

Lynch . . . By Comparison — You'll Buy PAR

Manufacturing Corporation

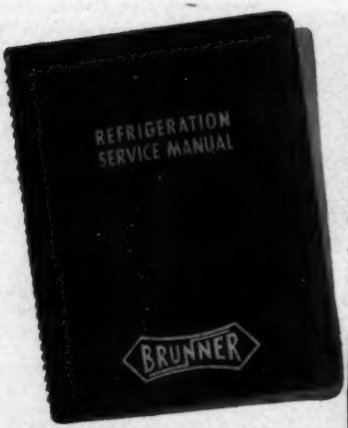
General Offices, Toledo 1 • Factory, Defiance, Ohio, U.S.A.

Brunner Refrigeration helps you serve better

IF HEAD OR DISCHARGE PRESSURE IS TOO HIGH

The Brunner Refrigeration Service Manual gives the following possible causes and remedies:

PROBABLE CAUSE	TEST and REMEDY
Overcharge:	Purge.
Air in system:	Purge.
Insufficient ventilation:	Relocate unit with proper air circulation over condenser.
Dust in condenser:	Clean condenser.
Dirty or clogged water passages in condenser or water valve:	Clean tubes and open water valve and clean.
Water not turned on:	Turn on water.
Operating with higher suction pressure than unit rating; i. e. operating low temperature unit on medium temperature service:	Change motor pulley and operate compressor at slower speed.
Evaporative condenser water or fan pump stopped, or make up water float stuck shut, or clogged water strainer:	Check motor circuits. Free float and clean strainer. See if fan belts are broken or slipping—replace or adjust.
Evaporative condenser tubes dirty:	Clean tubes.
Cooling tower pump motor stalled or off, clogged water strainer:	Check motor circuit. Clean strainer.
Insufficient evaporative condenser capacity or cooling tower capacity:	May be caused by extremely high atmospheric wet bulb conditions, beyond designed conditions. Increase fan capacity or supplement with additional water cooled, air cooled, or evaporatively cooled surface.



SERVICE essentials are common to all refrigeration systems. In the Brunner Refrigeration Service Manual, fundamentals, such as the above, are emphasized, so that no matter what minor difficulties there may be in various refrigeration systems, the basic installation and maintenance advice given will still apply. Therefore, make use of your Brunner Manual when trouble-shooting. If you do not have a copy we will be glad to furnish one for only $2.50. Write to

BRUNNER

BRUNNER MANUFACTURING CO., UTICA 1, N.Y., U.S.A.

To protect air conditioning and refrigerating systems . . . prolong their life and usefulness . . . this laboratory "detective" guards the purity of "Freon" safe refrigerants. He's on the trail of non-condensable gases (mainly air) of which the tolerance permitted in "Freon" is less than 2%. All "Freon" is so analyzed before shipment.

The exceptional purity of all "Freon" refrigerants—controlled by many laboratory tests such as this one—helps increase the operating efficiency of air conditioning and refrigerating systems. It reduces the risk of corroding . . . forestalls the need of frequent overhauls and aids in keeping maintenance costs low.

"Freon" refrigerants are also free from acids . . . and are almost totally free from moisture (less than 25 parts in a million parts of "Freon") and other impurities. In addition, they are harmless . . . nontoxic, non-flammable, non-explosive . . . odorless and stainless.

For compact, safe, long-lasting refrigerating systems, specify "Freon" safe refrigerants. There's a "Freon" for every job, every temperature requirement. For detailed technical information, write Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.

OUTSTANDING FEATURES OF "FREON" SAFE REFRIGERANTS

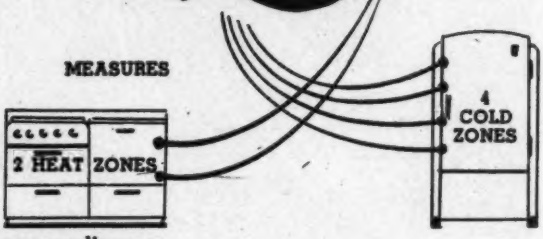
1. Narrow boiling point range—confined within limits of 1/2°
2. Less than 2% of insoluble gases in vapor phase.
3. Freedom from acids. There are none in "Freon."
4. Freedom from impurities . . . less than 1/20 of 1%.
5. Freedom from moisture.

KINETIC
FREON
REG. U. S. PAT. OFF.
safe refrigerants
"Freon" is Kinetic's registered trade mark for its fluorine refrigerants and propellants

Brand New

Model 60-JRT

APPLIANCE TEMPERATURE TESTER



- Tests electric or gas appliances
- Checks temperature controls
- Gives readings while doors are closed
- Designed for laboratory accuracy, built for hard everyday use.

This new combination resistance thermometer and thermocouple pyrometer is a natural for refrigeration service engineers, factory maintenance men, laboratory technicians and contractors.

The low temperature scale of −100° F to 80° F gives accurate readings on the spot for household refrigerators, deep freeze units, walk-in coolers, refrigerator display cases, water and beverage coolers and air conditioning equipment... The higher temperature scale of 0° F to 600° F simplifies trouble shooting on ovens, motors, compressors, controlled processing and heating equipment... The 300 volt AC scale shows whether the line voltage is normal for the appliance.

J-B-T

Model 60-JRT is probably already in stock at your distributor's. For technical details, ask for Bulletin JRT-546.

J-B-T INSTRUMENTS, INC.

483 CHAPEL STREET • NEW HAVEN 8, CONNECTICUT

Another

KEROTEST....

1st.

KEROTEST was among the FIRST manufacturers to recognize the Air Conditioning and Refrigeration Wholesaler and to distribute Kerotest Products through these Wholesalers, because of their excellent service facilities ... The Kerotest Policy is to continue this satisfactory method of distribution

KEROTEST

MANUFACTURING COMPANY · PITTSBURGH, PENNA.

Branch Offices: NEW YORK · CHICAGO · HOUSTON · LOS ANGELES

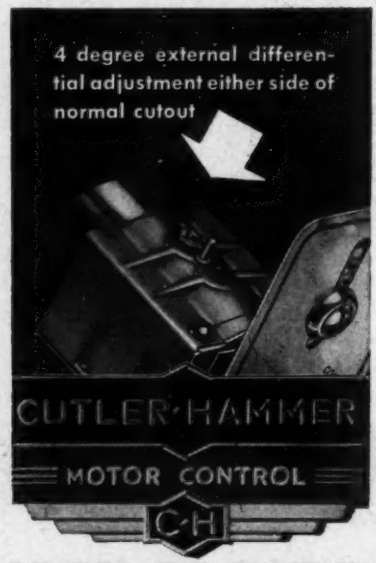
A COMPREHENSIVE LINE

Cutler-Hammer Refrigeration Replacement Control

The Cutler-Hammer line of Refrigeration Replacement Control is unusually comprehensive and complete. One unit alone, the *Universal* unit, will handle 60% of the repairman's needs. In rare cases where exact replacement control must be furnished, that item also will be found in the Cutler-Hammer line, individually packed, clearly labelled, complete with dial plate, mounting screws, trim washers and instructions for mounting, and range and differential adjustments.

The Cutler-Hammer Line of Refrigeration Replacement Controls is the product of more than 50 years of fundamental control specialization . . . another reason why outstanding refrigeration wholesalers recommend it and alert service organizations from coast to coast feature and use it. . . .

CUTLER-HAMMER, Inc., 1363 St. Paul Ave., Milwaukee 1, Wis.



This One Universal unit alone covers 60% of all needs.

Bul. 9521N9

Adjustable Mounting Brackets
Maximum Mounting Centers 4-3/16
Minimum Mounting Centers 2-3/16

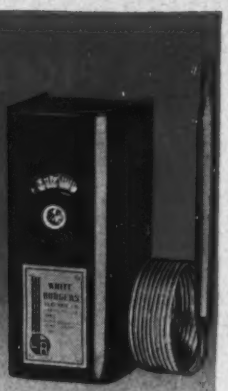
Adjustable Cutout Feature—Differential can be increased 4 degrees by turning indicator in "Hi" direction and decreased 4 degrees by turning in "Lo" direction.

Adjustable Range—Turning screw clockwise lowers settings and counter-clockwise raises settings.

Operating knob can be adjusted to meet various evaporator scale settings. New knob is ideal for varying shield thicknesses. Makes *this* control adaptable to wider range of single dial replacement jobs where overload is not required in unit.

DOMESTIC, SEMI-COMMERCIAL AND COMMERCIAL CONTROL

WHITE-RODGERS controls are so flexible in application that CUSTOM BUILT requirements often can be satisfied with standard controls

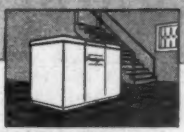


REFRIGERATED TRUCKS

In refrigerated trucks, as well as terminal and hold over points, accurate temperature control is essential.

STORAGE WAREHOUSES

Whether for food or furs, blood plasma or bakery goods, White-Rodgers controls will fit the need.



FOOD LOCKERS

Beverage cooling, chill bars, farm freezers, milk coolers and many others all require accurate temperature control.

HOMES

Built-in summer-winter air-conditioning requires the insurance of positive control that White-Rodgers controls give.

FACTORIES

For unit cooling, air conditioning and metal parts cooling, White-Rodgers controls assure dependability.

RETAIL STORES

Better-satisfied customers stay longer, buy more, in

BARS AND TAVERNS

Bottle or beer tap refriger-
ation, soda fountains
like all

FLORIST SHOPS

y cases with
nly con-
ndise
ility

LOCKER PLANTS

For quick freezing of foods, as well as low-temperature storage, positive and accurate control is essential.

Whatever you need in temperature or pressure control applications, it's more than likely that a *standard* White-Rodgers control can be applied or readily adapted to your use. Unusually accurate, attractive and dependable in operation, White-Rodgers controls are standard with leading manufacturers of refrigerating and air-conditioning equipment. Write for refrigeration catalog and engineering data today.

WHITE-RODGERS ELECTRIC CO.

ST. LOUIS 6, MISSOURI

Controls for Refrigeration • Heating • Air Conditioning

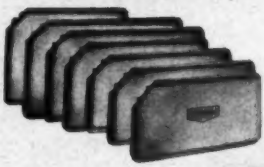
VISIT the WHITE-RODGERS BOOTH

All Industry Exposition • Cleveland, October 29-November 1

PICKED SIX MONTHS AGO AND STILL FRESH...

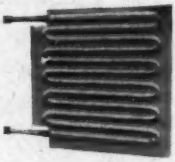
THANKS TO KOLD-HOLD!

No matter whether it's frozen foods picked six months ago, or milk, meat, ice cream or other types of perishable products, Kold-Hold equipment gives safer storage and transportation at lower cost. Kold-Hold Serpentine Plate Type Evaporators have no equal in efficiency and dependability for locker plant space cooling, for shelves and stands in sharp freezing, or as cabinet liners, shelves and dividers. Kold-Hold Evaporators maintain the temperature of delivery bodies at the uniform level necessary in the successful transportation of fresh meat, ice cream, frozen foods, and other perishables.



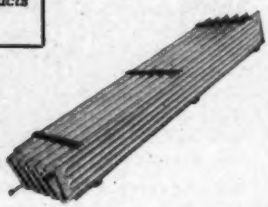
Kold-Hold gives you these advantages:

1. Maximum prime surface.
2. Highest rate of plate heat acceptance obtainable for low temperature work with natural convection low sides.
3. Minimum pressure drop.
4. Freedom from oil logging since the refrigerant circulates freely from inlet to outlet.
5. No chance of short-circuiting of the refrigerant.
6. Maximum K factor.



REMA CONVENTION

Don't miss the convention of the Refrigeration Equipment Manufacturers Association to be held in Cleveland Public Auditorium October 28 to October 31. You can see all the Kold-Hold products at our space No. 414.



KOLD-HOLD

KOLD-HOLD MANUFACTURING CO.

502 N. Grand Ave. Lansing 4, Michigan

Easily Adjusted

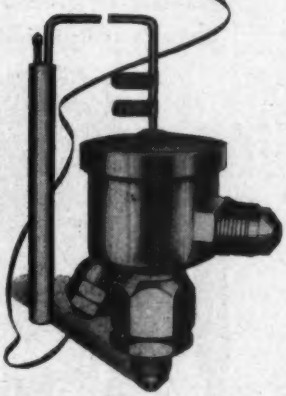
BY A TWIST OF THE WRIST

THE NEW ALCO THERMO-LIMIT VALVE

One full clockwise turn of the handy square-headed external stem increases the super-heat 4°—but does *not* alter the limiting pressure.

The ALCO THERMO-LIMIT VALVE is a "safety" control that limits pressure to prevent motor overload. It is liquid charged for positive control in any location and position. Parts are interchangeable so that pressure, capacity and super-heat can be changed in the field.

Available at your wholesaler's for smaller capacity commercial refrigeration. Ask for our Bulletin 152.



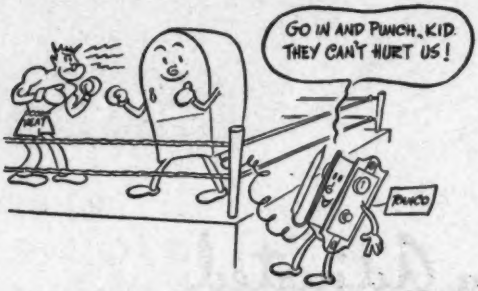
ALCO

ALCO VALVE CO.

857 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Pressure Regulating Valves; Solenoid Valves; Float Valves; Float Switches.

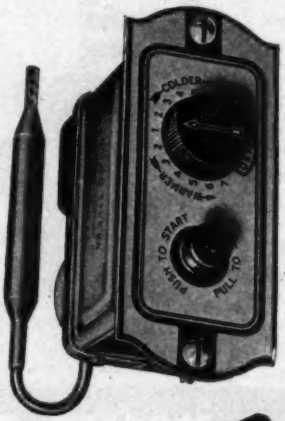
Ranco's in YOUR Corner...



So Old Hard-Hitting Heat can't hurt your customers—not with Ranco Refrigeration Control protection.

The thermometer can "blow its top" without affecting Ranco Control's accurate maintenance of uniform temperature with high relative humidity. And, too, Ranco Controls assure completely automatic defrosting regardless of weather or load conditions.

Ranco's skilled machinists, accustomed to working at close tolerance, inspect each part for precision in every step of construction . . . this is your insurance and Ranco's guarantee of perfection in operation.



TYPE KW-414

Service men who want the best in performance and long life ask their jobbers for Ranco Controls. Detailed information on any control furnished on request.

Ranco Inc.

COLUMBUS 1, OHIO

THE REFRIGERATION SERVICE ENGINEER

The National Magazine of Refrigeration Sales, Service and Installation

Published Monthly by

Nickerson & Collins Co.
433-435 North Waller Ave.
Chicago 44

Telephones Austin 1383-1384-1385

Publishers of Technical Books and Trade Journals Serving the Refrigeration Industries for over 50 years.

H. T. McDERMOTT, *President*
H. T. CURTIS, *Vice President*
L. R. TOWNSLEY, *Sec.-Treas.*

H. T. McDERMOTT
Editor and Publisher
H. D. BUSBY, *Managing Editor*

Associate Editors
EMERSON A. BRANDT
E. R. CURRY

L. R. TOWNSLEY, *General Mgr.*
HELEN G. SMITH, *Asst. Mgr.*
A. M. WILLCOX, *Eastern Mgr.*

Advertising
R. L. HENDRICKSON
EDW. DAVIESON
BERNARD E. NEARY

Official Organ
REFRIGERATION SERVICE ENGINEERS SOCIETY

EASTERN OFFICE
420 Lexington Ave., New York 17
Telephone Lexington 2-4816

Subscription Rates United States $2.00 per year. Single copies 25c All other countries $3.00 per year

Copyright, 1946
by Nickerson & Collins Co., Chicago, 44

Vol. 14 AUGUST, 1946 No. 8

Contents

In This Issue 23
Working Under Pressure with a Marine Trouble Shooter—*by Donald F. Daly* 25
Ice Cream Hardening Room 27
A Suggested Pharmaceutical and Biological Refrigerator—*by W. C. Hefferlin* 28
Getting Down to Business—*by Waylan Clarke* 30
Packaging Foods before Freezing 32
Proposed New Code for City of Dayton 34
Southern Service Shop—*by Donald Delayen* 37
Questions and Answers:
- Comments on Question 744 39
- Liquid Circulated with Different Metering Devices 39
- Coldspot Inefficient 39
- What is a Reciprocal? 40
- Frigidaire Master 6-34 40

Service Pointers:
- Grunow Pointer 42
- BX Tube Bender 42
- Refrigerant and Oil Funnel 42
- Testing Compressors 43
- Highside Float Circulator 43

Designing Air Conditioning to Create Future Sales—*by Herbert Hanley* 44
Nomenclature Standardization 46
O.P.A. Records Must be Preserved 47
R.E.A. Approves Loans 47
Limit of Inventory to Force Goods to Market 50
Clean Air 50
First Effects of O.P.A. Extension 52
June Production Up 52
Wiring Diagrams for Majestic Units 54
R.S.E.S. News:
- Canton Applies for Charter 60
- Herman Goldberg Party 60
- New Service Company 60
- Educational Program for 9th Convention 62
- Sound Films—Schedule of Showings 64
- Chapter Notes 66

New and Improved Appliances 76
News of the Industry 80

LOOK FOR THESE

Calibrated Dials
Independent adjustment of cut-in and cut-out pressures
Totally enclosed dust-proof snapswitch
Cold control adjustment
Tamper-proof cover
Capillary pressure connection

All these features are standard on Minneapolis-Honeywell Refrigeration temperature and pressure controls. Many others, especially designed to meet your individual requirements, are available. See your Honeywell branch or jobber for details. Minneapolis-Honeywell Regulator Company, 2934 Fourth Ave. South, Minneapolis 8, Minnesota.

Honeywell

IN THIS ISSUE—

You will enjoy reading "Working Under Pressure with a Marine Trouble Shooter" by Donald F. Daly on page 25. It is not exactly an informative or educational article but it will probably recall one of your own pressure periods while "sweating it out" with the author as the deadline for completion of the work draws nearer.

Packed into one page, 27, is a volume of information on the building of an ice cream hardening room. It provides not only a suggested layout and blueprint of the room but in addition, specifications of wall, floor and ceiling construction, methods of wiring and of draining defrosting water.

Following closely on the heels of the article in the June issue on the need of special equipment for the refrigeration of pharmaceuticals comes a suggestion by W. C. Hefferlin on what form that equipment should take. His article on page 28 provides an idea for a multi-temperature cabinet.

Waylan Clarke continues this month with his discussion of advertising in his column "Getting Down to Business" on page 30. Direct mail advertising and display advertising, when and what to advertise is the subject matter this issue.

The canning season is in full swing. A very timely article on methods of packing food before freezing, page 32, should be helpful in the latest method of preserving food—with refrigeration. The article also provides some suggestions on packing the freezer in such a way that the items can be easily found.

The city of Dayton, Ohio, has drawn up a new proposed code governing the installation of refrigeration equipment. It contains some interesting new provisions on licensing of servicemen and companies. See page 34.

A refrigeration service shop in Paris, Tenn., has met with considerable success in offering a number of services in addition to refrigeration. In 12 years' time the shop has developed from a one-man shop to an 8-man organization. The story appears on page 37.

The question and answer department with its comments and problems of the serviceman appears on page 39 of this issue.

One contributor of a service pointer suggests the use of a short length of B.X. as an inside bending spring for ¾" tubing. He finds it works. Read it on page 42.

Because of the recent demand for wiring diagrams of the Majestic unit, three of them appear in this issue beginning on page 54. Others will follow in the next issue.

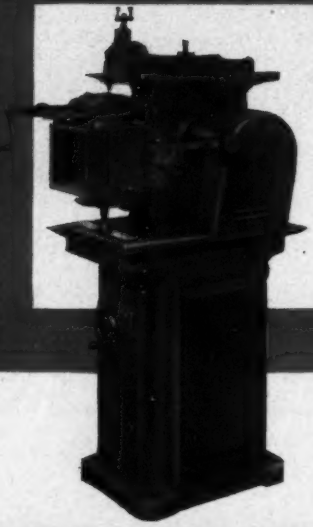
Described under new and improved appliances on page 76 are two new tools of particular interest to the service field. One is a new hand truck for handling refrigerators and the other is a Carbide drill which can be used to drill through brick walls.

S S S

COVER

THE front cover this month shows the interior of Carter's Service Shop located in Paris, Tenn., where several services such as refrigeration and air conditioning, electrical contracting, radio, small appliances and ventilating equipment are combined to a total gross of $35,000 per year.

The machine tool bench at the left is equipped with a lathe, drill press, buffer and grinder. At the right, along the wall, are the small appliance repair bench, motor repair bench, motor rewind bench and the refrigeration repair bench. In the background through the arch can be seen a part of the sales room and the entrance to the street. See the complete story on page 37.



Logan

A NAME TO REMEMBER WHEN YOU THINK OF BETTER LATHES AND SHAPERS

BRIEF LOGAN SHAPER SPECIFICATIONS:

Length of ram travel, 7⅜" . . . strokes per minute, "Anyspeed", 64 to 175 . . . length of bearings, main frame, 10" . . . length of ram, 16⅛" . . . width of ram, 5" . . . table traverse, 10½" . . . table vertical travel, 5½" . . . table length, 8" . . . table width, 8" . . . table depth, 1½" . . . saddle bearing, 6" . . . toolhead travel, 2⅜" . . . toolhead swivel, 360° . . . toolhead diameter, 4" . . . Cross feeds, 6 (.002, .004, .006, .008, .010, .012) . . . Sprocket and chain drive . . . vise 5"x5"x1½" . . . motor, ½ hp, 1750 rpm . . . Belts, "A" Belt, V-type . . . floor space, 14"x19" . . . Height over all, 51" . . . Shipping weight, shaper, stand and motor, 535 lbs.

NEW LOGAN 7-INCH SHAPER

COMBINES EXTRA CAPACITY . . . WIDE RANGE OF FEEDS AND SPEEDS . . . SMOOTH POWER . . . LASTING ACCURACY

The Logan Shaper is built by the same organization which engineers and builds the Logan Lathe. With a maximum stroke of 7⅜", the Shaper permits full machining of work 7½" long. It is quickly, easily set up to handle all types of straight cuts, angular cuts, squaring, machining and slotting operations. Metal is removed smoothly and accurately at any desired speed between 64 and 175 strokes per minute. The speed can be changed instantly, without stopping the motor or shifting the belt. The ram is micro-set by a simple screw adjustment. There are six automatic feeds in either direction from .002 to .012, with a half turn of the feed handle in either direction reversing the feed. The tool head may be swiveled 360° and instantly re-set to center by means of tapered locating pins, an exclusive Logan Shaper feature. For ruggedness and lasting accuracy, the Logan 7-inch Shaper is built entirely of steel and cast iron, with no die castings used. The extra heavy cast iron crank plate puts ample power back of every stroke and eliminates chatter. Positive, slip-proof operation, even on heavy cuts, is further assured by the roller type chain drive. For full information on the Logan Shaper, see your Logan dealer, or write direct for catalog information.

N-2

LOGAN ENGINEERING CO. CHICAGO 30, ILLINOIS

Working under pressure with a Marine Trouble Shooter

By DONALD F. DALY

SERVICE work on commercial refrigeration is a worrysome job, and of all the various types of service work I have done, ship repair is by far the most harassing. There are several reasons for this. In many cases the ship is in port for only a few hours and you have to work against the dead line of sailing time. In other cases the ship is laying at anchor out in the bay and the only way to reach it is by motor launch. Usually there is only one launch out to, and one launch from, the ship each day. This launch has many stops to make so it takes from two to four hours to reach the ship.

You never know what is wrong with the plant until you actually reach the ship, and in many instances it will be impossible to make more than one trip. The serviceman has to figure on taking with him everything that is to be used in making the repairs. This means a supply of expansion valves, solenoid valves and coils, C. P. valves, spare gauges, leak detector, bracing torch regulators and hose, oxygen and acetylene, seals, valve plates, suction reeds, and etc. In fact, everything which might be necessary to do any sort of repair job. If you have ever seen a serviceman struggling up an accommodation ladder from the deck of a pitching launch with all of this paraphernalia you will know what I mean. You just about have to carry the whole shop along. When you finally do get to the ship the job might be anything from a blown fusetron on one of the domestics, to a complete overhaul on the main plant. (It isn't quite as bad as it sounds, we know from the type of ship what make of equipment is used.)

There is something about this working under pressure that is fascinating, but for some reason it seems to have a tendency to distort a man's judgment. Of course this is true of every type of refrigeration service. If you have a deadline to meet, and the job doesn't lend itself to quick diagnosis along conventional lines, there is a tendency to jump to conclusions. To assume that there is something radically wrong with the design or engineering of the plant in question. When actually, if the plant has been operating all right for any length of time, in nine cases out of ten it is some simple mechanical defect.

I know that this tendency to commit errors while working under pressure is a failing of mine, and after many years in the business I know that it has the same effect on other servicemen. I have tried to reason out the cause of this phenomena and the only conclusion I could reach was—when a man gets on one of these tough jobs he knows he is on the spot—and unconsciously tries to build himself an alibi in advance. If the job were on shore, or in a more accessible spot, he would use his knowledge and experience to a much better advantage. But where the job is in a remote spot, with no chance to run to the shop for additional parts or advice, the tendency is for errors in judgment to come up. Even among the most experienced mechanics.

Here is a timely follow-up to the article entitled "Marine Refrigeration" in last month's issue which provided a picture story of the complicated systems installed on board ship. The serviceman's job on these installations calls for his best skills at all times but to work against time in addition to the natural difficulties of such jobs calls for a large measure of self-reliance and confidence.

To illustrate what I mean I cite the following job which I worked on under these conditions, and what took place on that job. I was sent out to work on a Liberty ship which was laying at anchor about fifteen miles from the dock. The launch had many other stops to make so we didn't reach the

ship until after noon. When we got our equipment aboard (which is no small task) I consulted the Chief Engineer. He told me that the plant would not keep the temperatures down and that there was a bad frost back. The ship was to sail at nine o'clock the next morning.

I had two men with me and we started on a routine check of the plant. I put one man to testing for leaks, and the other to checking the cut-in and cut-out points of the room thermostats. The plant was a conventional Liberty ship set-up. A 7½ ton (7H5) carrier compressor, pulling on six fixtures. A meat room, fish room, and ice maker, at 15 degrees; a dairy room at 32-34 degrees; and a scuttlebut (water cooler) at 44-50 degrees. These rooms were all cooled by pipe coils. In addition there was a vegetable room at 38-42 degrees which was cooled by a blower coil. All expansion valves were Alco removable cage type, and all rooms were protected by room thermostats and solenoid valves; with a constant pressure valve in the suction line from the vegetable room.

Frost Back Persists

A routine check brought out the fact that none of the rooms was down to the desired temperature by about ten degrees. We tested the compressor and found that the discharge valves were leaking back, and that the low side gauge was off about seven pounds. We installed a new gauge on the low side, put in a new discharge valve plate and new suction reeds, changed oil, tested for leaks, re-set the low pressure switch, tried the compressor and found it to be O.K. So I checked it off my list as a possible cause of the trouble.

We still had a frost back so we checked all of the expansion valves. The power elements seemed to be all right, and the Chief Engineer told me that he had installed all new cages just a few days before. We started up again and the frost back was still with us, but the temperatures were coming down and we were able to set our room thermostats. We found and fixed several small leaks, and added enough "Freon-12" to bring the charge up to where it should be.

It was now seven o'clock in the evening and the boss came out to see how we were getting along. He had hired a special launch for the trip and he wasn't very happy about it. We weren't supposed to work overtime without special authorization, but the job had to be fixed so I had taken it on myself to authorize the overtime.

The boss worked with us and after every test we could think of had been made, and we still hadn't stopped the frost back, he decided that there was a leak on the inside of the heat-exchanger. (On these jobs all coils are teed into a common suction line and there is a large heat-exchanger near the compressor. The liquid line is bonded to the suction line, and both lines are covered with cork, with just the valve stems visible.) I was at a loss to account for the trouble so I agreed that he could be right. The boss went ashore to get a new heat-exchanger. In the meantime we tore out the old one. The boss got back with the new exchanger about 2 A.M. He was so sure we had found the cause of the trouble that he didn't wait to see, but went on home and to bed.

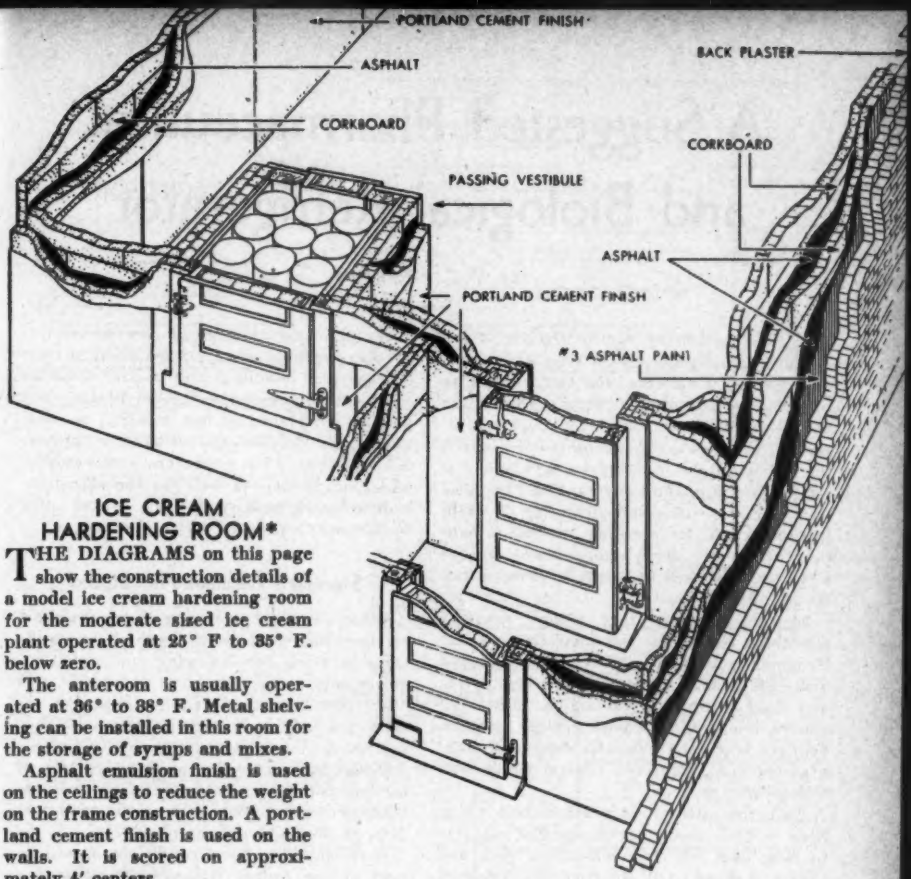
Ready to Quit

We installed the new H. E., put the plant back into operation, and the frost back was still there. We were out of ideas and just about exhausted. The Chief Engineer was giving us a bad time and wanting to know, "What kind of a bunch of Joe McGees we were." I didn't blame him much, and there was no use telling him we had done our best. As he said, "The best wasn't good enough. Either we could fix it, or we couldn't fix it. But we had damned well better get it fixed before sailing time or he would see that we never got another job from his company." Well, it was up to me and time was short. It was now 6 A.M. and just three hours till sailing time.

I was about to tell the Chief that I was beat. That I didn't know what was wrong with his double damned plant, and furthermore, I didn't care. That he could take his refrigeration plant and all of his company's work, and go straight to Hell. But before taking such a drastic step we decided to go up to the galley and have a cup of coffee. Now I don't know if it was the decision to give up on the job, the fresh morning air, or the coffee, but for some reason my mind started to function again.

I left my two partners drinking coffee and I went back down below and did what I should have done in the first place. I shut off all the suction valves at the outlet of the various coils. After the compressor had cycled off I opened up the suction valves one at a time. I opened up the meat room coil. No frost back. I opened up the vegetable room coil. No frost back. But on the next

(Continued on page 74)



ICE CREAM HARDENING ROOM*

THE DIAGRAMS on this page show the construction details of a model ice cream hardening room for the moderate sized ice cream plant operated at 25° F to 35° F. below zero.

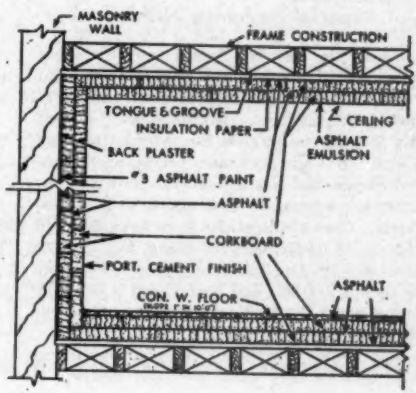
The anteroom is usually operated at 36° to 38° F. Metal shelving can be installed in this room for the storage of syrups and mixes.

Asphalt emulsion finish is used on the ceilings to reduce the weight on the frame construction. A portland cement finish is used on the walls. It is scored on approximately 4' centers.

The floor in the hardening room is sloped one inch in ten feet to the door. A drain located in the center of the anteroom floor receives the water from defrosting. Floors should be slightly coved at the wall.

Any shelving should be supported on structures within the rooms to prevent puncturing the insulation. Hangers installed through the insulation permit warm air infiltration with the subsequent danger of moisture and ice collecting to damage the insulation. Electrical conduits should be brought in through the wall in which the door is set.

Metal corner beads on all salient corners will protect the corners of the insulation from damage from hand trucks and similar equipment.



*Courtesy of Armstrong Cork Co.

A Suggested Pharmaceutical and Biological Refrigerator

By W. C. HEFFERLIN

IN THE article by Louise Bruner in the June issue, page 29 of THE REFRIGERATION SERVICE ENGINEER, and the evidence as provided by Dr. Arthur Wyss, Dean of the School of Pharmacy, Western Reserve University, Cleveland, convincing proof is given the refrigeration industry as a whole and especially the manufacturers, that there has been for sometime and definitely is from now on, a call for absolute control of temperature in any given compartment area of a refrigerator used in hospitals, drug stores, laboratories, etc.

If the manufacturers would consider something else beside the domestic field and the commercial field, and if just one would make the proper advancement, a completely new field is opening up and a rather exclusive one, which would include doctors, dentists, hospitals, wholesale drug, and manufacturers of the most critical drugs and biologicals.

With the advance in refrigeration today there is little if any excuse for the industry to ride back on their collective heels and refuse or delay to fill the very vital needs of a branch of science upon which their own lives or their families' depends.

Special Designing Needed

Up to the last few years very little has been offered and few ideas put forth that were pointed toward the medical fraternity and their problems. In the April issue of this journal we offered the information and design for an accurate temperature-controlled machine as a portable unit for the express purpose of Controlled Cold Anesthesia. Cold applications have been too well proven by those doctors using ice, etc., to question the feasibility and practical usage of such a system, and cost is not a primary factor when the medical society has an accurate tool to work with.

The same applies in the pharmaceutical field and its very definite requirements.

As the new biologicals are developed greater precision of care is required in their storage and handling, and as the situation now is throughout the United States, if a sudden epidemic hits any locality, no adequate local supplies are on hand or in storage this side of the producers' Laboratories. This does not speak well for the refrigeration industry to have left the avenue open to humanity's greatest killer, disease.

Standard Cabinet Not Suited

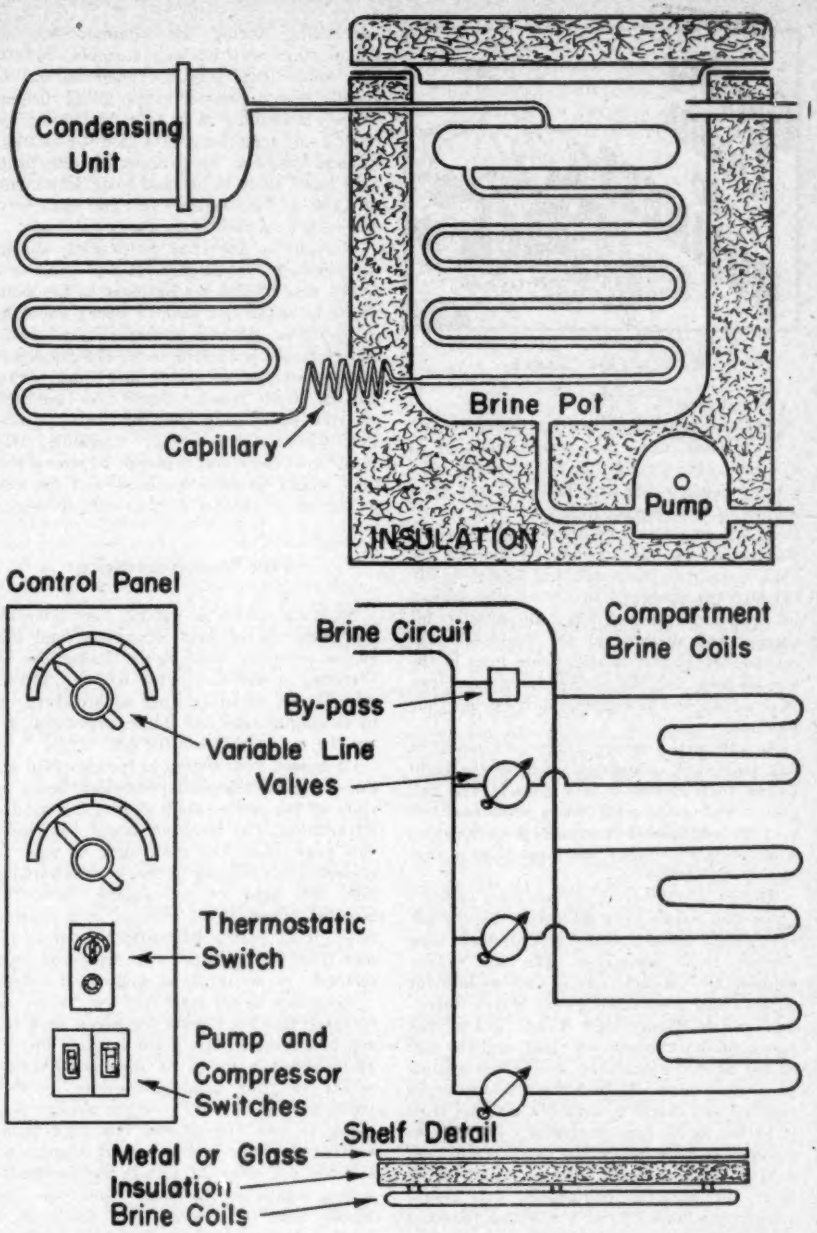
When we would attempt with our standard refrigeration methods to level off temperatures in a box for the many and varied requirements of the numerous biologicals and other pharmaceutical requirements, the results can only be a poor imitation of that desired by the trade. Example, 36 degrees Fahrenheit is ideal for most biologicals at the present time. Yet storage space is required for other items such as oils or animal fats, at 59 degrees Fahrenheit, etc.

Such items for ideal conditions should be held at the proper temperature without a continual fluctuation due to the cycling of the unit. Chemical changes are in evidence when held steadily at a given temperature, but such changes are slowed down to the minimum.

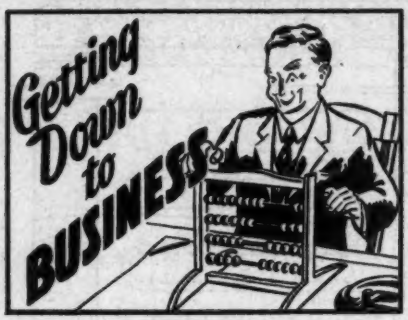
To overcome the disadvantages we offer this suggestion as a further advancement of the "Controlled Cold Flow" system and its usages.

This is a blueprint as called for by the Louise Bruner article. Use exactly the same system of compressor unit and the cold storage reservoir as specified in the "Controlled Cold Anesthesia" system, and substitute for the cooling pads "brine cooled" compartments with insulated shelves, brine pipes immediately below the insulation of each shelf, and at the top of each separate compartment area. In place of the usual refrigerator door we suggest separate dual compartment doors of dual spaced glass or "plexi-glass" with

(Continued on page 74)



CIRCULATED BRINE SYSTEM SUGGESTED FOR PHARMACEUTICAL REFRIGERATORS



By WAYLAN CLARKE

NOT so long ago there was a big-league baseball player who was spectacular as a batter. He'd stride up to the plate, take a roundhouse swing at a fast ball, and then do one of two things: smack the ball out of the park or miss it by three feet. Trouble was he struck out more often than he hit home runs, with the result that he was finally benched for another ball player who seldom hit a home run but who consistently hit singles and doubles in the pinches. This second ball player is still a big man in the big leagues, but the strike-out-or-home-run wizard has now disappeared from big-time baseball.

As you might suspect, there is a moral to this story (all columnists exercise the right to end their stories with a moral). The ball player who made good was a *consistent* hitter; the refrigeration service shop operator who intends to make good must be a *consistent* advertiser!

There's a small-town service shop owner I know who runs a very attractive display advertisement once a year—at Christmas time—in his local newspaper. He buys a two-column by six-inch space and wishes the 20,000 folks in his town a very Merry Christmas and a Happy New Year. It's a very commendable thought, all right, and the cost of the advertisement can be chalked against promoting good will, but the man has never realized any direct or indirect business from it so far as he can determine. During the summer months, when the townspeople and nearby farmers really begin to think about their refrigeration equipment, this fellow simply continues to run a three or four-line classified advertisement in the paper—the one he uses throughout the year. His competition breaks with consistent display space advertising during the summer, but our friend stays with his own formula. Result? His competition gets the business, but *he* spends many summer days going fishing. There's something to be said for fishing, but there's also something to be said for building a sound business. The competition can probably retire early in life and reap the benefits of a sturdy foundation—yes, and fish everyday in the summer if he wants to.

Were he to advertise consistently during the summer—or throughout the year—this fellow could build his business to the point where he might not have to worry about his competition. A series of display ads, a series of letters and postcards to his old customers, to prospects, to merchants, and timed for the months that count, would be infinitely smarter advertising than an isolated, one-shot Christmas greeting. Certainly, they would cost more, but it stands to reason that they would produce business and the cost would no doubt be written off, sooner or later.

Plan Your Advertising

So, it's a matter of putting your advertising dollar to its best advantage and that means seriously considering timing the advertising as well as staying with it. Hit-or-miss tactics in advertising usually turn out to be simply *miss* and don't forget that you are the man who foots the bill.

Of course, your listing in the classified section of your telephone directory helps—in spite of the service shop owner, this kind of advertising is at least consistent. It runs a full year. And the same may be said for classified advertising in the local newspaper. But this kind of advertising, which we labelled "Peanut" advertising in a previous issue, is at best a fifty-fifty return to you *and* your competitor who uses the same method. So we might as well call it a draw.

Time now to get your feet wet. Time now to reach into the pocket for green stuff that can be converted into more business for you. How about a series of display advertisements in your local newspaper—once or twice a week—for six to eight weeks? Is it going to pay you to run this kind of advertising? Your newspaper ad solicitor will tell you so—after all, he's in the business of selling space in his paper and you can't blame him for trying—but *you* can be blamed for *not* trying. This kind of advertising schedule will hardly break you financially, but if you are operating that close to

the margin, you might as well take the fling anyway.

The point is you don't *know* whether it will pay you to build this kind of a schedule, but you'll never know if you don't try. And by "try," I mean give it a fair trial. Make it your business to keep a record during the period you run this schedule. Maybe local conditions are such that it will pay off big for you, maybe not. In any event, don't drop the idea because it didn't pay off the first time. After all, there are a good many *variables* in advertising. Suppose a local catastrophe occurs—a train wreck, a tornado, yes, even a murder case. Newspaper readers sometimes forget every other piece of news (and the ads) when a big story breaks. And there are many other variables—the weather, national conditions, politics (you've heard of the word) and others. Try again! Change the message in your advertisement, use another day in the week, but keep hammering at it and keep checking returns to see what is happening.

Ask your new customers and old, forgotten ones, too, if you have any you have forgotten, what made them call you up or drop in on you and make a note of it. You'll soon find out whether or not your enlarged advertising schedule is paying off. For if a certain formula begins to work, it seems to work with other customers, too, and things perk along well until a drop-off tells you that a change of pace is in order.

Direct Mail Advertising

So much for display advertising in the newspapers. Next step is to conduct a little "market analysis"—a study of where you are going, where you want to go, and how you are going to get there. This step is preparatory to a full-scale plunge into direct-mail, use of circulars, pluggers, penny postcards, letters.

What kind of business are you after, what kind do you need? No doubt, you can classify your potential business into at least four categories—new customers in the domestic service end, revitalizing of old domestic customers, building new commercial business, or bringing old commercial business back into the fold. In other words, you are probably interested in both new and repeat business in the domestic and commercial field.

Your newspaper advertising will do some work for you—but at best, it must be highly generalized advertising. Then your direct-mail and other advertising techniques should be more specialized. They should cover particular fields with particular copy slants (a copy slant is a device used by advertising agencies to keep their copy writers busy). You should try to devise a message which deals *particularly* with the field you are attempting to sell.

Direct-mail is a kind of advertising that is too often a mystery to the average shop owner. It's a mystery because like most things in life which are mysterious, the user of it doesn't know enough about it and hasn't the courage to find out about it. The average shop owner who dips into direct-mail believes that it is simply pouring his money down the nearest drain—this usually because his return on the mailing is low and his message is slanted too wide.

First, consider the list. To whom are you going to mail? A copying of names from a telephone directory sounds like the easiest way and because it is, a good many shop owners take it. They expect a flood of new customers—and what do they get? Little or no return. That's the way this kind of advertising can and usually does work. A single letter or postcard to this kind of list is a waste of your time and a waste of your money.

Plan a Series of Mailings

Instead, plan a campaign—make your direct-mail more than a one-shot proposition. Include in it a circular perhaps distributed by hand to back doors or front porches in a given area. Then follow up with postcards and letters in a planned series, directed to the area which you have covered by the circulars. That's for the new domestic business.

Now, your old customers deserve attention too. Here again, a planned series of letters, postcards, Christmas greetings, as well, may pay off if you keep it going *consistently*, following up say, every thirty to sixty days. And you can suggest in your message to them that they tell their friends about you—about your quality, reliable service, about your low (?) rates, about your promptness in taking care of them.

(Continued on page 72)

Packaging Foods

Top: Disjointed chicken may be packed in shallow folding cartons, either heavily paraffined or lined with moisture-vaporproof cellophane (or similar sheeting). Each individual piece should be separately wrapped to prevent solid freezing. The carton should then be overwrapped, and heat-sealed.

Bottom: The "Vapo-Can," a new type of carton for freezing fruits and vegetables is highly moisture-vaporproof and easily filled. Here string beans are ready for freezing. Rectangular or cubical cartons made from heavy paraffined paper board, they are fitted with a circular lid similar to those used on friction-top tin cans.

Inset: Heavily paraffined, tub-shaped and cylindrical cartons are used as containers for fruits to be frozen. Shown in tub-shaped cartons are whole strawberries being packaged for freezing. These cartons possess an advantage over the cylindrical type since empty "tubs" may be nested.

EVEN if food is kept solidly frozen at zero degrees F. or less, it must be correctly packaged to hold desiccation (loss of moisture) and oxidation (action of the oxygen of the air) to a minimum, says the General Electric Consumers Institute.

A good frozen food package must possess certain characteristics: It should not permit the passage of moisture-vapor and should be both air-tight and liquid-tight. Grease, blood and fruit juices should not stain it. It must not impart any odor or flavor to the food. It must possess enough strength to withstand handling even at low temperatures. It should be easy to fill and to empty. It should stack well in a freezer or locker and, of course, be economical of space. And finally, it should be attractive and inexpensive.

No one package is perfect for all types of food. Although glass jars and tin cans possess almost all the necessary characteristics for a good freezing package, they are being largely replaced by paper board containers either made moisture-proof with wax (or some other substance) or lined with moisture-proof sheetings. Because glass is likely to break and tin cans cannot be re-used after their necessary crimp-sealing, the paper containers, which are cheaper and stack better in the freezer, are more desirable.

Packaging Meat

When pieces of meat, such as roasts, steaks, etc., or whole poultry are packaged, special paper wrapping is preferable to cartons. Wrappings recommended by the Consumers Institute are specially coated vegetable parchment, moisture-vaporproof cellophane, pliofilm or tensilite, aluminum foil laminated with moisture-vaporproof cellophane (or some moisture-vaporproof paper), and rubber latex bags. As the low temperature of the freezer tends to make wrappings brittle, a cotton elastic stockinette should be drawn over the wrapped food and tied securely at both ends to prevent the paper wrapping from tearing.

Ground meat, such as hamburger, and products such as disjointed poultry, are best packaged in a shallow, top-opening, folding carton lined with moisture-vaporproof cellophane, pliofilm or vegetable parchment. These should be overwrapped and

Before Freezing

heat-sealed. Heavily waxed cartons which may be used without liners or overwraps must be heat-sealed. To facilitate separate removal of steaks, chops, etc., place two layers of moisture-vaporproof paper between the layers.

Although vegetables may be packed in parchment bags lined with moisture-vaporproof cellophane, they don't stack well in the freezer. Heavily paraffined tub-shaped and cylindrical cartons are both moisture-vaporproof and liquid-tight, and although they are not too economical of freezer space, the empty tubs may be nested, saving space in your storage closet.

Rectangular Containers

Recently there have been offered rectangular and cubical cartons made from heavy paraffined paper board and fitted with a circular lid similar to those used on friction top tin cans. These cartons, called "Vapo-Cans," are highly moisture-vaporproof and are easy to fill, but it is difficult to remove solidly frozen contents without destroying the container.

Perhaps the most popular type of container for fruits and vegetables is the rectangular folding box, either end-opening or side-opening, fitted with a liquid-tight bag of moisture-proof cellophane or pliofilm. After the bag is filled, it is closed and heat-sealed. About the only disadvantage of this type of container is that it is difficult to get bags which do not leak and which may be easily heat-sealed.

Regardless of which types of packaging each individual homemaker prefers, she will be safe in using a reputable brand. It will do all the necessary things a good frozen food package should do.

To save confusion in finding the packages in the freezer, the very important job of labeling and identifying should not be forgotten. When the same type of package is being used for several different foods, good labels are a necessity in recognizing the package needed when it is found. Labels can contain such information as the kind of food, number of servings, date packed and, if it is one of the experimental packages, the method of processing can be included.

Grouping of all the packages of one kind of food in a mesh bag helps in quickly locating the package. Other methods include the use of different colored labels for different groups of foods such as red for meats, green for vegetables and yellow for fruits. Different colored string long enough to be attached to the package and drawn to the top of the freezer has also been used.

Top: Newest packaging material for roasts is aluminum foil sheeting. The picture shows a roast being wrapped in a sheet of aluminum foil laminated with moisture-vaporproof paper. This is the first packaging step in preparation for freezing roasts.

Bottom: Draw a stockinette over roasts wrapped in aluminum foil for added protection, as the foil, although highly moisture-vaporproof, becomes very brittle at low temperatures and is easily torn. This is the second step in packaging meats in preparation for freezing.

Proposed New Code for City of Dayton

THE City of Dayton, Ohio, has drawn up a proposed new ordinance governing refrigeration work, to supplement the Code of General Ordinances of the City. It includes several sections creating an Examining Board for Refrigeration Mechanics, designating its members and prescribing their powers and duties; bonding and licensing those engaged in the Refrigeration Business, providing for refrigeration inspections; creating the office of Refrigeration Inspector and prescribing his duties and powers. Requiring those engaged in Refrigeration work to be registered with the City. Requiring permits for certain Refrigeration work. Providing for the manner of installation. Prescribing penalties for violations of this ordinance.

SECTION 1. DEFINITIONS: A. Refrigeration as referred to in this ordinance shall mean the process or act of removing heat from any substance or space in a manner involving the expansion, vaporizing or liquefying and/or compression of a gas or fluid.

B. Refrigeration Equipment as referred to in this ordinance shall mean any appliance, apparatus, device or assembly of parts, tubes, fittings, tanks and/or machines used to confine, conduct, vaporize, liquefy and/or compress a liquid or gas for the purpose of refrigeration.

C. Refrigeration work as referred to in this ordinance shall mean the act of constructing, installing, moving, altering, repairing and/or servicing any refrigeration equipment as referred to in this ordinance. No part of this ordinance shall be construed to prohibit, control or regulate manufacturer, rebuilder, fabricator and/or assembler of refrigeration equipment, or to restrict Refrigeration Manufacturers' direct representatives from assisting licensed Refrigeration Mechanics or service men.

D. Refrigeration system as referred to in this ordinance shall mean all the machines, compressors, devices, equipment, connections, fittings, pipes, tubes, coils and controls containing or used to conduct a liquid or gas refrigerant which in its vaporizing or condensing cycle is used to extract heat for the purpose of cooling any substance or space either for the purpose of food preservation, comfort air conditioning or industrial processing.

E. Business of Refrigeration as referred to in this ordinance shall mean the act of offering for sale, trade or lease any refrigeration equipment. Such business establishments subject to licensing and bonding.

SECTION 2. BUSINESS OF REFRIGERATION: Every person, firm or corporation desiring to engage in the business of selling, leasing, constructing, installing, altering, disassembling, assembling, repairing and/or servicing any refrigeration system or equipment as defined in this ordinance in any building, structure, public or private premise or grounds within the City of Dayton shall first file an application to engage in said business, pay a license fee, and post the required bond.

SECTION 3. BOND: Before approval of any such application to engage in said business, applicant shall give a good and sufficient Surety Bond in the sum of One Thousand ($1,000.00) Dollars, executed by a recognized Surety Company, or a personal bond, with two sureties, which bond shall be approved by the office of the City Attorney, payable to the City of Dayton and conditioned that said applicant will comply in good faith with all the terms of the Building Code of the City of Dayton, Ohio, of which this becomes a part.

SECTION 4. LICENSE FEE: The license fee to engage in the business of refrigeration within the city limits of the City of Dayton shall be Twenty-Five ($25.00) Dollars per annum, payable at the time of filing of application. License shall be renewed upon filing of proper application and payment of Twenty-Five ($25.00) Dollars annually thereafter.

SECTION 5. REVOCATION OF LICENSE: Any holder of a license to engage in the business of refrigeration as defined in this ordinance found guilty of violating any part or section thereof may have his license suspended for a limit of time or entirely revoked, as hereinafter provided.

SECTION 6. MECHANIC'S LICENSE: No person shall hereafter install, alter or make major replacements, such as condensers, compressors, pipes, etc., in any part of any refrigeration system in the City of Dayton without securing a license as a Refrigeration Mechanic, as hereinafter provided for.

Every person desiring to engage in the occupation of or work as a Refrigeration Mechanic shall file a written application, pay an examination fee of Ten ($10.00) Dollars, and submit to such an examination as may be prescribed by the Board of Examiners. Should applicant pass the examination given by the Board of Examiners, he shall receive a license which may be renewed annually thereafter upon payment of the sum of Ten ($10.00) Dollars per annum. No part of the examination fee shall be refunded if applicant fails to qualify for a license, but if the applicant is successful the amount of the examination fee shall be applied in payment of the first year's license fee.

SECTION 7. REGISTRATION OF EMPLOYEES: Every person, firm or corporation employing anyone to do any refrigeration work in connection with the repair, installation, servicing or altering of any refrigeration system or equipment other than a licensed refrigerator mechanic shall register such person with the Department of Service and Buildings, and shall agree to be responsi-

ble for all work performed by such employee. A fee of One ($1.00) Dollar shall be paid for such registration. Such employer shall immediately advise the Department of Service and Buildings of the termination of the employment of such person. If such employer fails to give notice of the termination of employment, the employer shall continue to be responsible for any refrigeration work done by such employee.

SECTION 8. BOARD OF EXAMINERS: That there is hereby created a board for the examination of Refrigeration Mechanics within the city limits of the City of Dayton, to be known as Examining Board of Refrigeration Mechanics. Said Board shall consist of five members, consisting of the City Fire Marshal and the City Health Officer, both of whom shall continue to serve on said board through their terms of office. Two members shall be Refrigeration Mechanics, both of whom shall have had not less than three years' experience at constructing, installing and servicing refrigerator systems and equipment in the City of Dayton, and one a refrigeration air-conditioning engineer actively engaged in such work in the City of Dayton. These last three members shall be appointed by the City Manager within ten days after this ordinance takes effect. Their term of office shall be one year, but may be reappointed. If any vacancy shall occur in said board said vacancies shall be filled by the City Manager for the unexpired term. Members of said board shall meet within twenty days after the enactment of this ordinance; shall elect a President and Secretary and set up suitable examinations for the licensing of Refrigerator Mechanics.

The Board of Examiners may determine the qualifications of an applicant for a license by a written examination, an oral examination, or both. The Board shall determine the time and place of such examinations. There shall be at least three members of the Board of Examiners present at the oral examination of any applicant.

SECTION 9. REVOCATION OF LICENSE: The Board of Examiners shall have the power to revoke all licenses issued under this ordinance. A license shall be revoked immediately by the Board upon conviction of the holder thereof, duly in a Court of competent jurisdiction, of the violation of the State of Ohio or of the ordinances of the City of Dayton, relative to the constructing, installation, moving, altering, repairing and/or servicing of any refrigeration equipment as referred to in this ordinance. A license issued pursuant hereto may also be revoked by the Board in its discretion when it finds that the licensee is guilty of fraudulent use of his license or of incompetency in the exercise of the privileges of said license, of fraud, or misrepresentation in securing the license or permits granted pursuant to the Building Code of said City, or of refusal to conform his work to the requirements of law or of such other branches of duty by licensee hereunder as the Board may regard contrary to the intent and purpose of this ordinance.

In all cases involving revocation of license at least fifteen days' notice of the contemplated revocation shall be served upon the licensee whose license is in question and said notice shall be in the form of a summons as provided by the laws of Ohio in civil actions and shall be served in the manner provided by said laws for the service of said summons. It shall indicate the time and place of the hearing, the general grounds of said contemplated revocation, and shall advise the licensee of his right to appear at said hearing in person and by counsel for the purpose of presenting his defense therein. Such licensee shall have the right to interrogate witnesses at said hearing, and be heard orally upon the merits of his defense. The Board shall have the power to subpoena and compel attendance of the same, to administer oaths, to punish for contempt, compel the production of records and other documentary evidence, and do all lawful things essential to a full hearing of the case before it. It shall make a complete record of such cases, and may at its discretion keep a stenographic record of the testimony produced in such hearings. It may request legal advice from the City Law Department and adopt such procedure for its decorum and the dispatch at such hearings as it may regard advisable.

The decision of the Board shall be final and no licensee whose license has been revoked shall be granted a new license until the expiration of six months after the revocation aforesaid and after successful examination and payment of all fees as in the original instance.

A revocation of license shall not entitle a licensee to a refund of any part of the license fee which he may have paid.

SECTION 10. THE REFRIGERATION INSPECTOR: That there is hereby created the office of City Refrigeration Inspector, which Inspector shall be appointed by the Mayor and Commissioners at a regular meeting. Applicants to the office of City Refrigeration Inspector must have no less than five years' actual experience at refrigeration work as defined in this ordinance, no less than one year of which experience shall be in the City of Dayton. Applicants to this office must file a written application with the Examining Board of Refrigeration Mechanics, which board shall subject applicants to such examination as they see fit, and make their recommendation to the Mayor and Commissioners.

No applicant shall be appointed by said Commissioners without having received the favorable recommendation from said Board of Examiners. The Inspector so appointed by the Commissioners shall sever any direct or indirect connections or financial interest in any refrigeration business within sixty days after assuming his duties as Refrigeration Inspector.

SECTION 11. DUTIES OF INSPECTOR: The City Refrigeration Inspector shall have entire supervision over the inspection of all refrigeration work within the City of Dayton, Ohio. The Refrigeration Inspector shall, upon application on the proper forms, grant permits for the installation of Refrigeration Systems, devices and equipment, and upon the payment of the required fees, he or his assistants shall make inspections of all new refrigeration installations and make re-inspections of any existing refrigeration installations at such time as he may deem necessary for the purpose of the safeguarding

of life and property within the City of Dayton, Ohio.

SECTION 12. AUTHORITY: The Refrigeration Inspector shall have the right to enter any building during reasonable hours in the discharge of his official duties for the purpose of making any inspection or test of any refrigeration work, devices or equipment therein and where such installations are found dangerous to life or property or not in conformity with existing Ordinances, he is hereby empowered to disconnect or shut off and seal such equipment or devices after having given notice in writing to the parties concerned.

SECTION 13. TESTS: No refrigeration work shall be hidden from view in any manner including pipe covering, flooring or enclosed in walls until the Refrigeration Inspector has inspected and passed upon same. All piping or systems of more than twenty-five pounds of refrigerant charge by weight must be subjected to a pressure test using dry carbon dioxide or nitrogen under pressure exceeding the highest working pressure that system is liable to by fifty pounds. This test must be on the piping with a suitable gauge mounted when the Inspector is called for inspection. Large systems using long and complicated runs of piping and tubing may be inspected in sections, however, the same pressure test as herein described shall be put to each part of the system after which a final pressure test shall be put to the system as a whole. A final inspection when the job is operating shall be made before final approval is given.

SECTION 14. PERMITS REQUIRED: No person, firm or corporation shall install, alter or make major replacements, such as receivers, condensers, compressors, piping, etc., in any part of any refrigerating system except as herein provided until such person, firm or corporation has filed with this Department and received an approved permit for the work specifically intended on each individual system, provided, that in cases of emergency the permit shall be obtained within seventy-two hours from the time the installation, alteration or major replacement was started. Work of an emergency nature may proceed up to the point where safety to life or property is no longer a factor, however, no work may be covered up or hidden from view until proper permits, inspection, and approval has been granted by the Inspector. Further, provided, that permits will not be required on the installation, alteration or major replacement and use of refrigerating systems containing not more than ten pounds of refrigerant or the installation of any factory assembled and charged self-contained unit systems.

SECTION 15. FEES: Fees for the issuance of installation permits, licenses, certificates, examinations of applicants for licenses, registrations and for inspections required under the provisions of this ordinance shall be collected by the Department of Service and Buildings, the amount of such fees shall be established by said Department except as otherwise herein provided and shall cover the cost of inspection and supervision resulting from the enforcement of this Ordinance.

SECTION 16. INSTALLATION REQUIREMENTS: A. Condensing units located one above the other within the same room shall be provided with adequate and permanent facilities for service and inspection.

B. All moving machinery shall be provided with adequate guards in accordance with the American Standard Safety Code for Mechanical Power Transmission Apparatus, A. S. A. B-15-27 with revisions.

C. Adequate illumination and space for inspection and servicing of condensing units shall be provided.

D. Condensing units with enclosures shall be readily accessible for servicing and inspection.

E. All connections made with the public water supply shall be in accordance with the State of Ohio and City of Dayton Plumbing Codes and Regulations.

F. Discharge water lines from condensers or other refrigerating equipment shall be in accordance with the State of Ohio and City of Dayton Plumbing Codes and Regulations.

G. The installation of all electrical equipment and wiring shall be in accordance with the requirements of the Building Code of the City of Dayton and the Ohio Inspection Bureau.

H. The installation of all gas fuel devices and equipment used with refrigerating systems shall be in accordance with the Official Building Code of the City of Dayton.

I. In addition to the requirements and provisions contained herein and in the Building Code of the City of Dayton, all refrigeration systems hereafter installed, altered, repaired, added to, constructed or serviced in said City of Dayton, shall be installed, altered, repaired, added to, constructed or serviced in strict accordance with the then current American Safety Code for Mechanical Refrigeration as approved by American Standard Association and published by the American Society of Refrigerating Engineers.

SECTION 17. PERSONS NOW ENGAGED AS MECHANICS: Persons now actively engaged in refrigeration work and desiring to qualify for a license as a Refrigeration Mechanic shall within sixty days of the date of the passage of this ordinance file application with the Examining Board of Refrigeration Mechanics, stating therein their qualifications and experience. A majority affirmative vote of said Board on such application shall entitle the applicant to a license as a Refrigeration Mechanic, provided the fee of ten ($10.00) Dollars is paid with the application.

After sixty days of the date of enactment of this ordinance, applicants shall be subjected to the examination as herein before provided.

SECTION 18. SPECIAL CLAUSE FOR WAR VETERANS: All Veterans of World War II, having been in the Armed Forces of the United States, and who were actively engaged in refrigeration work, as defined in this Ordinance, prior to their joining or while in the Armed Forces, may within sixty days after their release from the service file an application for a license as a Refrigeration Mechanic with the Board of Examiners and obtain a license as herein provided, without being subjected to an examination.

Southern Service Shop

Combines Services Successfully

By DONALD DELAYEN

ABOUT 12 years ago W. H. Carter moved to the city of Paris, Tenn. in search of an outlet for his skill as a refrigeration service engineer. He had very little to back him up apart from a knowledge of refrigeration, an untiring determination and a definite idea of what constituted good service to the customer, but he got the start he was looking for and today he is the owner and operator of an 8 man organization doing a $35,000 per year business. (Front cover pictures present shop.)

When he moved to Paris 12 years ago he purchased the service department of an appliance store which had been operating the service department at a loss and was anxious to dispose of it to someone who could make a success of it. Mr. Carter had very little cash with which to get started and the depression of those years made progress difficult. He undertook to buy the business on monthly payments, operate and improve it on the money he could make from the business. The customers he had to work with were skeptical and hard to convince. They had been misled and misinformed for years by poorly operated service organizations and they had to be shown that they were going to get something worth their money.

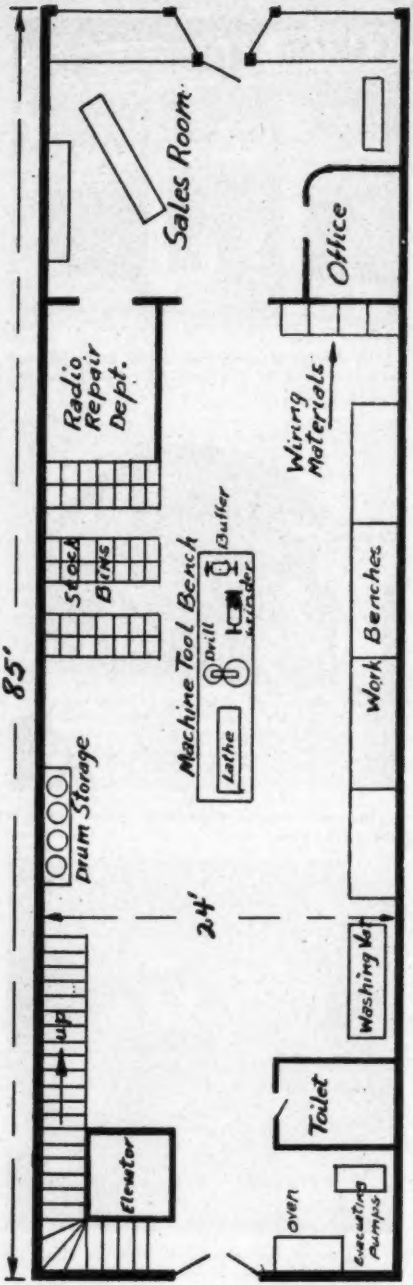
It was a hard uphill climb those first few years but Paris, Tenn. boasted a population of 12,000 and Mr. Carter knew the business was there. He did $4,000 per year gross at that time with the aid of one helper but that was not enough. Gradually he began building a larger volume of business, branching out into other classes of work and improving his service to his customers. He became known over a larger and larger area until now he covers four counties surrounding Henry County.

In addition to the city and small town customers within his territory, he had developed quite a large rural business which is increas-

The display signs on the Carter establishment indicate some of the services offered by the company.

The radio service department which opens to the sales room.

A view of the sales room with the office occupying one corner in the background.



ing each year and which includes locker plants both small and large, dairy equipment and other farm equipment. No attempt is made to cull the calls. They are all taken as they come, domestic, commercial, minor reparts or major rebuilds and completed as quickly as possible. Some effort is made to keep certain men on domestic calls while others specialize on commercial, but speed of service is the first consideration.

Recently he moved to new and larger quarters, badly needed because of increased business. He had added some additional services to those already offered and has become a Frigidaire dealer. In addition to refrigeration and air conditioning service he does a thriving business in the repair of small appliances and radios. His radio department at present, is so crowded it became necessary to stop advertising this work because dealers in the small towns nearby bring in enough radios to keep him busy.

Complete Service Offered

A complete service on any type of refrigerating equipment is offered including the repair and rebuilding of hermetic units. The company rebuilds its own compressor bodies, rewinds motors, and makes some parts which are hard to obtain. The shop is equipped with such major tools as a lathe, drill press, buffers, grinders, paint spray equipment, welding equipment, dehydrating oven, evacuating pumps and vacuum pumps.

"Anyone who had not tried rebuilding a Frigidaire Meter-Miser unit has missed a lot of fun," says Mr. Carter. "We have had very good success with rebuilding hermetics and it is not difficult to open up a Westinghouse or Frigidaire dome, replace a broken discharge line or valve and reseal it again. The main precaution is getting it thoroughly dry before recharging and keeping it thoroughly clean before resealing. A dehydrating oven is a must in this work."

The building now occupied by the company is two-story 24 x 85 ft. The second floor is used by the company as a paint department and as a storage space for new equipment and a stock of supplies. An elevator between floors makes the second floor easily accessible.

The company covers four counties in the sale of Frigidaire Commercial equipment,

(Continued on page 72)

The building occupied by Carter's Service is two story, 24x85 feet. The shop layout on the first floor is shown at left.

QUESTIONS AND ANSWERS

On Problems of Servicing, Installation and Maintenance of Household and Commercial Refrigerating Equipment—Send Your Problems to the Question Box.

COMMENTS ON QUESTION 744

ITEM 488 in The Question Box volume 5 and question 744, page 46 of the June issue, particularly the latter, attracted my attention.

Question 744 is not answered correctly in that Temprite control valves operate with a very small differential, normally 1/10 of a lb. Specifically, a standard valve with the original factory adjustment provides 40° exit temperature when full load is imposed on the Temprite cooler, and is set for a refrigerant temperature 5° lower, 35°. In operation the valve closes when the pressure in the cooler reaches the value corresponding to 35° and opens 1/10 lb. higher. Valves can be adjusted 1° lower, for 34° refrigerant temperature and 39° full load exit temperature, and 3° to 6° higher depending on the model valve.

The Temprite control valves which are furnished as part of the Temprite unit assemblies are built in 3 different refrigerant specifications, namely, Sulphur Dioxide, Methyl Chloride and "Freon-12." The letter prefix of the model indicates the refrigerant, i.e., M. & F. Factory settings of these valves are 8.4 lbs., 26 lbs. and 33.9 lbs. respectively.

Evidently, the cause of trouble in question 744 was either shortage of refrigerant or a damaged control valve, the damage either weakened springs or leak through the seat. A gauge connection is provided on the suction shut off valve of standard Temprite coolers to take the cooler operating pressure. If the pressure is sufficiently below normal to cause freezing or continues to fall when there is no load on the cooler, the control valve should be replaced with a new one. Just a slight shortage of refrigerant often causes freezing in the cooler even though the operating pressure is normal. Shortage of refrigerant is accompanied by a continuous hissing sound in the Temprite cooler which ceases as soon as enough refrigerant is added to the cooler to close the float valve. However, if the cooler operates short of refrigerant for some time the float valve needle is often damaged, from "wiredrawing," so that it leaks and has to be replaced.—*Earl Jennings, Service Manager, Temprite Products Corp.*

LIQUID CIRCULATED WITH DIFFERENT METERING DEVICES

QUESTION 757: In the normal on-cycle of a refrigerator, what percentage of the gas or liquid is actually circulated through the expansion orifice. Would it be the same in a capillary system, high-side float and expansion valve? Don't seem likely but I have no means of knowing. Please explain.

ANSWER: There are variables and conditions which make it impossible to directly answer your question. The amount of refrigerant in the system and the capacity of the unit in Btu removal will govern the frequency of the circulation of the entire charge. The load on the evaporator will also reflect in the amount of refrigerant circulated.

Under identical conditions and capacities, the type of metering device will not change the volume of refrigerant circulated. This, of course, takes for granted that each metering device has adequate capacity for the job.

When a given heat load is present, the refrigerating effect of each pound of refrigerant remains constant so long as the condenser temperature and evaporating temperature are constant. This information can be obtained from the refrigerant tables. The refrigerating effect is found by subtracting the total heat of the liquid at the temperature entering the metering device from the total heat of the vapor at the temperature leaving the evaporator.

COLDSPOT INEFFICIENT

QUESTION 758: I have a Coldspot refrigerator, Model K. When it is run without any refrigerant I can obtain a vacuum of about 20" with the expansion valve all the way closed. When I started to charge this unit I found that when I reached an idle pressure of 45 lbs. I could not get it to pull a vacuum when I started the unit again. Instead, I got a back pressure of about 25 lbs. Twelve hours later I started the unit again. The back pressure was about 14 lbs with no indication of it getting lower. I installed a new expansion valve, thinking that the old one may be wide open. I would like to know if the vanes would have anything to do with this condition, and what is the best way to check if the

vanes are still OK. The proper oil and amount of oil was put in this unit.

ANSWER: The trouble you are having with the Coldspot may be due to poor fitting blades in the compressor; to a leaky check valve on the suction side of the compressor; or to a clogged oil cooler line in the compressor. As you know, the oil circulates through a small tube cooler from the bot- where it enters the suction port of the compressor. If this cooler is clogged so that no circulation of oil is obtained, the compressor will very likely run dry, causing it to be inefficient.

Worn blades will also cause inefficiency of the compressor and in the event that these blades must be replaced there is apparently no alternative but to return the unit to the factory or to involve yourself in the job of making new blades and fitting them to a perfect fit. If you have not had experience in this latter I would advise you to avoid it if possible. You will find considerable difficulty in getting the blades to operate properly.

WHAT IS A RECIPROCAL

QUESTION 759: I came across an example set forth under the heading of "Refrigeration Heat Load Computations." In the example the combined resistance factor for a walk-in cooler is computed at .4895, and the reciprocal of this resistance is stated as 2.04. Further on in the example a resistance factor for double glass is set forth as .091 and the reciprocal in this case is 11.

I would appreciate your advising me just how these reciprocal figures are arrived at.

ANSWER: One of the fundamentals of mathematics deals with powers and reciprocals of numbers. When a number is raised to the third power, for example, it is multiplied by itself twice or is said to be cubed. When the reciprocal of a number is taken, it is set up as a fraction and the numerator is divided by the denominator. For example, the reciprocal of 2 is ½ and 1 ÷ 2 equals .05.

In refrigeration calculations, the resistance is the number of degrees necessary to permit 1 Btu. to flow through 1 square foot in 1 hour. Conductivity is the Btu.'s flow through 1 square foot in 1 hour with 1 degree temperature difference. Note that resistance deals with 1 Btu. while conductivity deals with 1 degree.

When a resistance of .4895 is given it means .4895° is the temperature difference necessary to cause the flow of 1 Btu. But conductivity is flow for 1 degree, therefore, it is said to be the reciprocal of resistance. When resistance is known it is only necessary to divide 1 Btu. by resistance in degrees to get conductivity; thus 1 ÷ .4895 = 2.04 (Btu.).

FRIGIDAIRE MASTER 6-34

QUESTION 760: In checking a Frigidaire master 6-34 cabinet model 1933, equipped with a highside float and restrictor just before entering the evaporator, there was no refrigeration with the unit running all the time. When the gauge was connected, it showed a vacuum of 25". More refrigerant was added until the evaporator was all frosted.

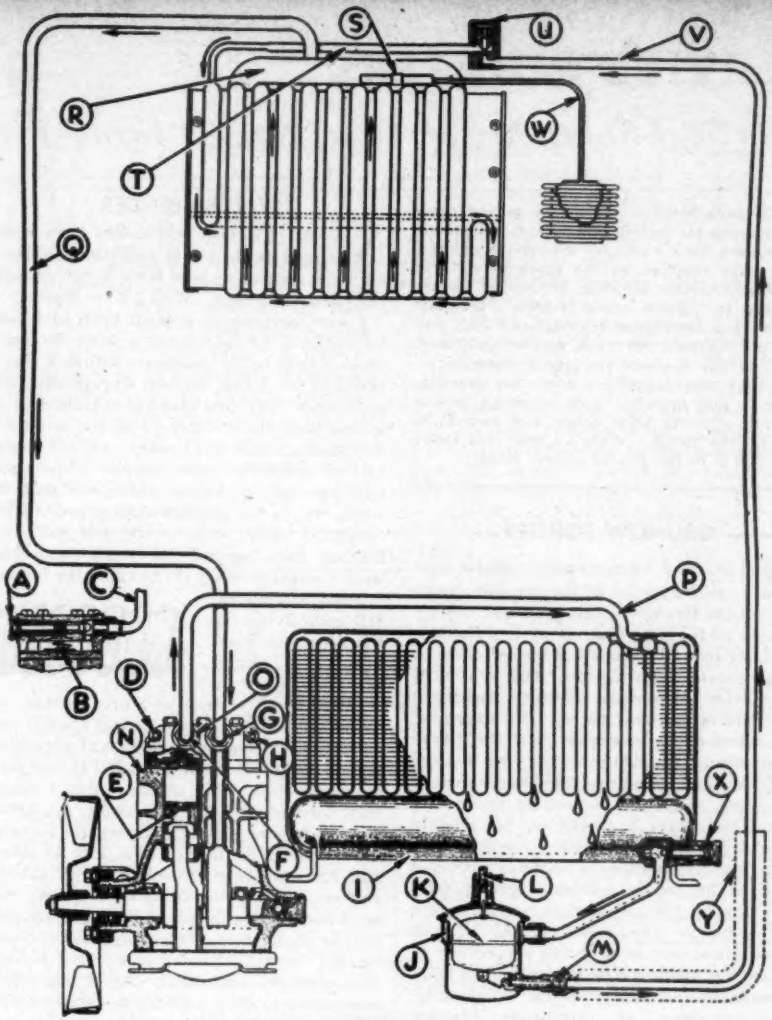
It kept running continuously with temperature in the twenty at about 1" vacuum and would not change. Refrigerant was then purged a little and again it went down to 25" vacuum.

A new high side float was installed. We now have a wet evaporator condition with the suction line frosted from where it leaves the evaporator to the compressor with 65 lbs. head pressure and 5" vacuum, no refrigeration, still running continuously.

ANSWER: The Frigidaire master 6-34 refrigerator was made in 1934 as indicated by the model number. It was a highside float system with an intermediate pressure control valve between the float and the evaporator. No restrictor was used. The intermediate valve was of the weighted type, nonadjustable, and required 25 lbs. pressure to open it. In other words, the weight of the valve is such that it takes the back pressure plus 25 lbs. to raise the needle off the seat. This valve is for the purpose of preventing excessive expansion of the refrigerant in the liquid line and the consequent frosting of the liquid line.

All highside float systems must be charged with the exact amount of refrigerant for proper operation (the master 6-34 is charged with 2⅛ lbs. SO_2). As the system becomes low on refrigerant, the running time of the refrigerator increases and the temperature of the cabinet increases. If a slight overcharge is placed in the system, the return line will frost or if the overcharge is large, the return line and evaporator may only sweat and the compressor may pump liquid. Suction pressures will be high with an overcharge, normal to very low with an undercharge.

The usual method of charging is to add refrigerant very slowly until a cold or frosted suction line can be felt with the hand, then purge very slowly until the frost on the suction line with a frosted evaporator returns to within two or three inches of the outlet from the evaporator.



FRIGIDAIRE MASTER MODEL 6-34 SYSTEM

Air in a highside float system will often accumulate in the top of the float chamber until the pressure is such that it will not permit the entrance of any liquid refrigerant. With no liquid entering the float chamber to raise the float ball, the float closes and the evaporator becomes starved of liquid giving the system an appearance of being short of refrigerant. For this reason, it is always good practice to purge the top of the float chamber before assuming the system is short of refrigerant or that anything is wrong with the float.

I am of the opinion that your entire trouble with this system from the beginning has been improper charging and possibly air in the float chamber. At present, the indications are that the system is overcharged and should be purged until the frost on the return line is not more than three inches from the evaporator. Purge from the top of the float.

SERVICE POINTERS

Practical Solutions of Your Service Problems

THIS department is an aid to service engineers who are seeking new devices or methods to improve their work. All the service pointers have been supplied by the subscribers. THE REFRIGERATION SERVICE ENGINEER invites readers to submit "down-to-earth" practical service and installation information. Five dollars will be paid for each pointer published. Every service engineer has one or more "kinks" that have proved useful in every day practice. Here is your opportunity to exchange service pointers with the other fellow and earn $5.00 for the information. Write up your idea today and mail it to the *Service Pointer Editor*.

GRUNOW POINTER

I BELIEVE I have a service pointer that may clear up some of the peculiar symptoms of the Grunow. This source of trouble puzzled me for some time on my own Grunow and have found the same trouble on others.

On several Grunow units there is a small dehydrator between the condenser and high-side float or Carrene meter. This dryer being between the condenser and the purge gauge connection will cause varying degrees of false gauge readings, indicating various symptoms of trouble, depending upon what extent this dryer is restricted. A slightly restricted dryer will lengthen running time, cause low pressure gauge readings with cool tubes at bottom of condenser giving false indication of low refrigerant charge, or the bottom two or three tubes running at room temperature may lead one to suspect air in system. A badly restricted dryer gives more pronounced indications of the above false symptoms—long or continuous running periods, very hot compressor, very hot tubes at top of condenser, followed by compressor leading down and tripping overload thermal cutout.

After a long idle period refrigerant may leak through restricted dryer allowing unit to again start operating normally but ending up by overload tripping out again.

To remedy, install a new fairly large free flowing dehydrator. These units are quite old and a new dryer may cure some other moisture troubles, too.—*Submitted by Glenn Fee, Knoxville, Iowa.*

BX TUBE BENDER

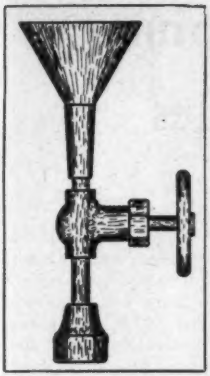
NO DOUBT most servicemen have been caught on the job at some time or other with the need of a short bend in ¾" copper tube and no bender. Well I was—almost.

I was servicing in a small town and had to replace a ¾" tube running from the compressor head to the condenser with two short bends in it. I had the soft drawn tube but no bender. My first thought was to find a spring that would either go on the inside or the outside to use as a bender. I spent about an hour and a half searching every hardware store, garage, implement house and shop in town, but not a suitable spring was to be found. I went back to the job and was leaning back against the wall wondering what I could possibly do to make the bends. I spied a scrap of BX cable lying on the floor and wondered if I might use that, or would it crush under the pressure; would it cause ripples in the tubing; and could I remove it after making the bend. I picked it up and slipped it inside the tube. It was just the right size. Well at the worst I could only lose a few feet of tubing. I tried making a bend and to my surprise I could make a bend in the ¾" tube just as short and just as easily as I could with ⅝" tubing and an inside spring bender. I sprung the bend back just a little and the cable slipped out as if it were greased. I have never wanted for a ¾" bender since. All I need is a piece of BX cable. All I ask other servicemen to do is just try it once and you will agree that only a bending machine can beat it.—*Submitted by L. A. Eichelberger, Marshall, Mo.*

REFRIGERANT AND OIL FUNNEL

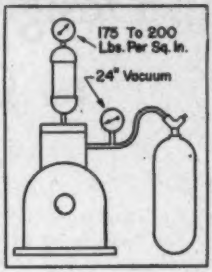
SOLDER into the outlet of a small metal funnel about six inches of quarter inch copper tubing and place a flare nut on the other end.

This is handy for adding oil to compressors which have no oil filler plugs, such as some model Frigidaires, Norges and Coldspots, etc.

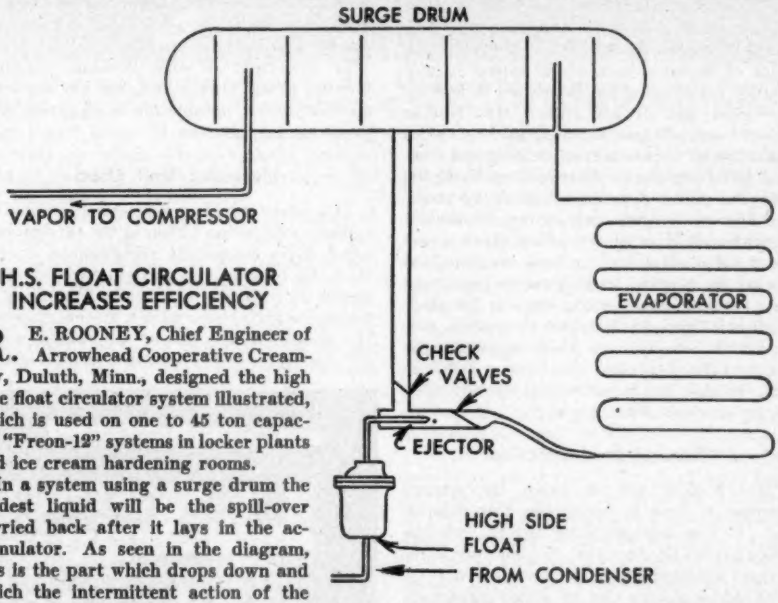


It is necessary to place a hand valve between the funnel and gauge to prevent gas from escaping until a vacuum is obtained. Care must be taken to draw in no air. It is also ideal for adding Carrene to Grunows, and purging them. A small amount of Carrene, placed in the funnel, acts as a gauge to show whether there is pressure or vacuum present, if the valve is "cracked" slightly.—*Submitted by Joe Hartinger, Green Bay, Wis.*

TESTING COMPRESSORS



AFTER a compressor is overhauled it is very important to know how efficient the pump is, and we find this a sure and simple operation. If the pump is to operate with "F-12" use this refrigerant and check compressor in a run-in stand, pump the "F-12" from a service cylinder into a small dehydrator tube and gauge, and when the high pressure gauge reaches 175 to 200 lbs. pressure the compressor should pull a 24" vacuum quickly and hold both when compressor is stopped.—*Submitted by Ace Refrig. Co., East St. Louis, Ill.*



H.S. FLOAT CIRCULATOR INCREASES EFFICIENCY

R. E. ROONEY, Chief Engineer of Arrowhead Cooperative Creamery, Duluth, Minn., designed the high side float circulator system illustrated, which is used on one to 45 ton capacity "Freon-12" systems in locker plants and ice cream hardening rooms.

In a system using a surge drum the coldest liquid will be the spill-over carried back after it lays in the accumulator. As seen in the diagram, this is the part which drops down and which the intermittent action of the float recirculates. This in effect quenches part of the refrigerant that flashes to vapor as soon as the float discharges to the low side.

This lay-out is a neat answer for those who employ surge drums and recirculators in their refrigeration systems. By increasing the rate of flow through the evaporator, it increases the heat transfer and capacity.

Moisture is one of the "bugaboos" in low temperature refrigeration work and this system is on the job there, too. The warm vapor from the condenser comes close to the discharge orifice and does not let it freeze.—*Courtesy Armstrong Machine Works, Three Rivers, Mich.*

Designing Air Conditioning to Create Future Sales

By HERBERT HANLEY

GETTING ahead in the commercial-scale air conditioning field in the future depends largely on the merchandising features built in, according to Bert Natkin, head of Natkin & Company, St. Louis, Missouri. "Experience has shown us that air conditioning can do a lot more than merely cool a place of business" he pointed out "and that it's up to the contractor to merchandise the extra features possible to get business when active competition returns."

A good example is the new forty-ton Westinghouse installation which Mr. Natkin has installed at General American Sporting Goods Company in St. Louis. "We built in a lot of features here which appeal to any kind of retail merchant interested in getting the most out of his store" Mr. Natkin pointed out. "First, we've saved loss by installation of a precipitron to keep out dust and dirt from the merchandise, up to $5,000 per year direct economy. Second, we modified the air conditioning system so that it keeps an all-glass show window clear across the front absolutely free from condensation during the winter—another factor important to a retailer whose entire store is his show window. Third, we installed the system in a beautiful housing, out where anybody can see it, with peepholes, visible dust removal, etc., which helps the store sell its customers on the wisdom of trading there."

Planned for Inspection

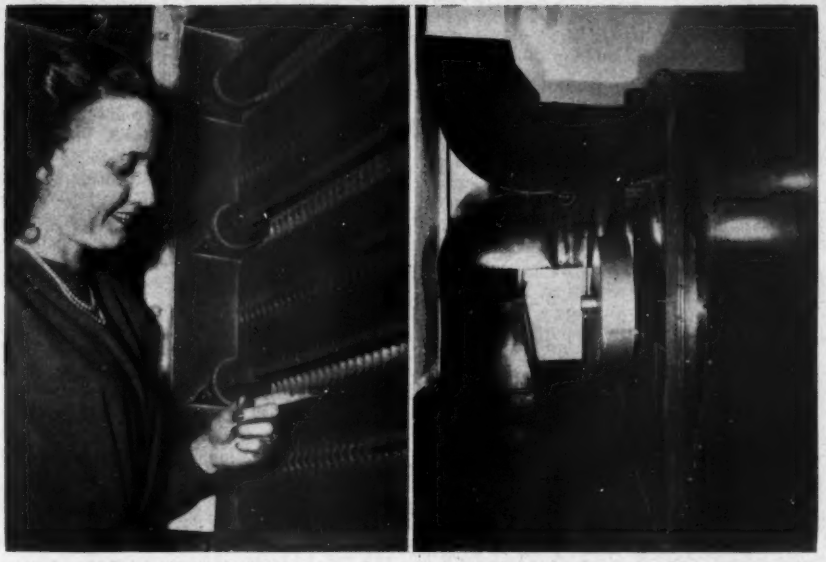
Mr. Natkin put in twice the normal amount of time in laying out this unusual job. It was important for several reasons, among them the fact that the building is the largest sporting goods store in the country, with seven floors, two of which need only supplementary cooling. Thus new throughout, the building gave Mr. Natkin a chance to make the most of air conditioning for merchandising. "The building represented a tightly-sealed box" he pointed out "With far less heat load than is usual for so much space. It had cool lighting throughout, floors which require about the same amount of cooling, and plenty of room to set up the compressor, mixing chamber, etc., almost anywhere." Forty tons of cooling are applied by direct-expansion methods, with the compressor, mixing chamber, a Westinghouse precipitron electrical dust remover, and the housing all located in plain sight on the third floor. There are four series of direct expansion cooling coils, of the wire finned variety, through which air is passed for cooling, across an open space, and thence into the precipitron for dust removal. These are included with a built-in blower, all enclosed in sheet metal with peepholes for demonstration to customers.

To the right of this housing, running silently, is the blower fan, and on the left, the compressor, notable for its cleanness and handsome appearance.

Hermetic Unit Used

The compressor is a hermetically sealed, 8 cylinder unit, using Freon as the refrigerant, which gives completely vibrationless operation. No bracing or extra supports whatsoever were required. It is vertically connected through 8 inch risers with a 40-ton evaporative condenser mounted on the building roof. Otherwise, the entire system is located at this

The modern front of the American Sporting Goods Co., which has since had the wood frame of the door replaced with an all glass door.



The precipitron electrical dust remover shown at left and the booster unit which increases the velocity of the air over the windows shown at right are two of the features of this air conditioner.

one point where it can be demonstrated proudly by store officials taking football coaches, athletic organizations, etc., on tour of the store.

With direct expansion coils and blower of two-stage control operation, the system circulates 16,000 cubic feet per minute of air, cooled to maintain a temperature of 80 degrees with 50% relative humidity when outside temperatures are 95 degrees with 76 humidity. Due to the "box like" construction of the building, with minimum windows and exits, it is possible to comfortably recirculate 80% of the building air, adding 20% fresh air from a rooftop intake during the cycle. There are no "stations" or remote cooling boosters. Simple 20x8 inch ductwork is sufficient to distribute cooled air into all floors through either grilles or anemostat type ceiling outlets. Controls are located on the office level, convenient to the building manager, for varying the temperature. The two upper levels, used for storage and shipping, will be cooled until maximum heat load is reached, when they will be cut out of the circuit in favor of the selling and management floors.

Above these standardized operations, the system is remarkable for the inclusion of the Westinghouse precipitron, which automatically cleans every cubic foot of air circulating through the mixing chamber. This is located between the return air and outside air cooling coils, with the electrical fins removable in small sections by first removing the ionizing wires, then small individual sections which can be washed or brushed clean. To maintain an even static pressure, steel sheet pierced with small holes, is set on the outgoing side of the precipitron. As pictured, this collects a thick coating of dirt daily electrically magnetized out of the air—in staggering amounts. With many sporting goods items subject to quick loss of sales desirability because of dirt, the precipitron is paying for itself swiftly, according to this "Department Store for Sportsmen." Another immediate advantage is increased value from the lighting system which does not thus have to cope with an atmosphere loaded with dust particles, or dirt settled on the lamps. Needless to say, elimination of dust is a godsend to hay-fever sufferers and otherwise protects the health of employes. Air projected into every level is 97% scientifically clean.

One of the most unusual ideas in this "dramatized air conditioning system" is the handling of air at the front of the store—which is composed of a huge expanse of plate glass without posts or vision obstructing framework. This, naturally, brings up the problem of moisture condensation in winter,

shutting off the view of bright sporting goods displays in the store. To put an end to this, Natkin & Company furred in a hidden duct, one inch wide by 10 inches high, which is concealed in the canopy over the window interior, running the full width of the store front. During the winter months, warm recirculated air is sent to the front through a separate duct, where a booster fan picks it up, increases the pressure 40%, and forces it down over the glass to keep this crystal clear. Return is by means of a grille over the window in the upper left hand corner. During summer weather, the same 1-inch duct likewise overcomes a pool of heat caused by 27 bright direct spotlights set over the window interior for "punch lighting" brightness.

Another feature is an "exterior" grille directly over the door outside the windows. This, likewise, utilizing "boosted air" keeps a stream of warm, pleasant air in winter, or cool air in summer blanketing the doorway. Not only does this create a good impression on entering customers, but blows back insects and dust from entering the first floor interior.

NOMENCLATURE STANDARDIZATION

EXACTLY what is a defrosting cycle? A desuperheater? How do you define resistivity and how quick is quick freezing?

What is the proper way to abbreviate British Thermal Unit? How should a draftsman indicate a pipe covered with "brine thickness" cork? Should you write degrees F, or °F., or deg. Fahr., or just F.?

There may be more than one answer to each of such questions, but it is desirable that the refrigeration industry agree on the preferred nomenclature. Such is the opinion of the men who recently formulated the new ASA Nomenclature Committee B53 sponsored by the American Society of Refrigerating Engineers.

The scope of this committee, as approved by the Council of the American Standards Association, is to provide terms and definitions relating to principles, processes, and equipment in design, manufacture, use and maintenance in the refrigeration industry, also appropriate symbols where not already provided in existing standards.

At a recent meeting of the committee, Sterling F. Smith, General Sales Manager, Baker Ice Machine Co., Omaha, Nebr., was elected Chairman, and M. M. Lawler, Worthington Pump and Machinery Co., Harrison, N. J., was elected Vice-chairman.

The work of the committee is divided into four subjects, each to be studied and reported on by a sub-committee. The subjects and chairmen of these sub-committees are: (1) Definitions, Chairman, R. J. Thompson, Sales Engineer, Kinetic Chemicals Co.; (2) Abbreviations, Chairman, Clifford Strock, Editor, Heating and Ventilating; (3) Letter Symbols, Chairman, Professor Carl F. Kayan, Assistant Professor, Mechanical Engineering, Columbia University; (4) Graphical Symbols, Chairman, E. R. Wolfert, Manager, Refrigeration Engineering, Westinghouse Electric Corp.

These committees are pursuing their studies actively during the summer months, and it is expected they will all report their recommendations to a meeting of Committee B53 before the end of the year. The final report of this Committee will be submitted to the Council of the American Standards Association for adoption as an industry standard.

The members of the committee and the organizations they represent are: Sterling F. Smith, American Society of Refrigerating Engineers; M. M. Lawler, Air Conditioning & Refrigeration Machinery Association with L. S. Morse and L. C. Bastian as alternates; Dr. W. R. Hainsworth, American Gas Association; R. G. Ewer, American Society of Mechanical Engineers with Alfred C. Buensod as alternate; M. C. Giannini, American Society of Heating and Ventilating Engineers; R. J. Thompson, Manufacturing Chemists Association; G. B. Bright, National Association of Practical Refrigerating Engineers; P. B. Christensen, National Association of Refrigerated Warehouses with Charles E. Eells as alternate; J. J. Zeitner, National Conservation Bureau; W. M. Timmerman, National Electrical Manufacturers Association with E. R. Wolfert as alternate; J. F. Stone, insulation group; Ben Blazer, Refrigeration Equipment Wholesalers Association with I. J. Fajans as alternate; H. C. Diehl, Refrigeration Research Foundation with C. F. Kayan as alternate; E. M. Newcum, Refrigeration Equipment Manufacturers Association; P. B. Reed, Refrigeration Service Engineers Society with A. G. Dietl as alternate; Sidney Korey, Bureau of Census with Geo. H. Alexander as alternate; H. R. Wensel, National Bureau of Standards with C. S. Cragoe as alternate; S. A. Moss, Z10 Committee with William Foote as alternate; W. J. Kunz, Z32 Committee; C. P. Austin, National Assoc. of Ice Industries.

RECORDS REQUIRED UNDER OPA MUST BE PRESERVED

MANUFACTURERS, wholesalers and retailers, and all other persons required under price control regulations to have kept records must preserve them until July 1, 1947, the Office of Price Administration announced today.

The action, Supplementary Order 167, effective as of June 30, 1946, was taken in order to enable OPA to carry on the powers and duties directed to it under the Executive Order 9745 signed by President Truman on June 30, 1946.

The Executive Order authorized OPA to continue all the functions, powers and duties vested in it by the Emergency Price Control Act of 1942, as amended, and the Stabilization Act of 1942, as amended, which did not terminate by expiration of those acts on June 30, 1946.

OPA pointed out that Section 1 (b) of the Emergency Price Control Act of 1942, as amended, provided that all regulations, orders, price schedules and requirements shall be treated as remaining in force for the purpose of sustaining any proper suit, action or prosecution with respect to offenses committed or rights or liabilities incurred on or before June 30, 1946. Today's action assures OPA that all records, books, accounts, invoices, sales lists, sales slips, orders, vouchers, contracts, receipts, bills of lading, correspondence, memoranda or other papers require to be kept under price control will be preserved in keeping with the continuation of its enforcement duties for violations committed before June 30, 1946.

(Supplementary Order 167—Preservation of Records—effective as of June 30, 1946.)

\$ \$ \$

REA APPROVES LOANS

THE Rural Electrification Administration has announced approval of loans totaling $130,000 to five borrowers in five States. The funds will be used to finance refrigeration plant facilities, farmstead wiring and plumbing, and purchases and installation of electrical appliances.

Following are the cooperatives receiving loans, the amount of the loan in each case and the purpose for which the funds were allocated:

Haynesville Electric Refrigeration Cooperative, Haynesville, La., a new cooperative, $55,000 to finance a 500-locker plant.

I do hope you can find what's causing the trouble—every time I walk by, the door flies open and the bottom panel falls off.

On your next service call...
put on
"TRAP-DRI" first!
You'll avoid expensive call-backs later!
TRAP-DRI
DRIER-FILTER-STRAINER
✔ Traps all impurities in your system
✔ As effective as a 900-mesh strainer — yet offers no appreciable pressure drop
✔ Silica Gel takes up to 12 to 16 per cent of
✔ Acts instantly — not affected by oil in
TRAP-DRI
THIS END OUTLET

offers no appreciable pressure drop

✓ Silica Gel takes up to 12 to 16 per cent of

✓ Acts instantly — not affected by oil in system — give up no dust or powder.

✓ Three sizes — ½, ⅓, and 1 ton

✓ May be used with Freon, Methyl, Sulphur

why every system needs "TRAP-DRI"
This heavy deposit of impurities was removed from a new system by an A-P "Trap-it" (similar to "Trap-Dri" but without Silica Gel).

This A-P "TRAP-DRI" Drier-Filter-Strainer ahead of your expansion valve is a great service time-saver on any system! You get smoother, trouble-free valve operation, prevent freeze-ups, clean up your refrigerant line in a jiffy!

Once on the line, a "TRAP-DRI" starts immediately cleaning out all gummy deposits, scale, dirt, and solder particles. And moisture or acids in the system are quickly absorbed by the efficient charge of Silica Gel. Gives you "100% protection" against system impurities.

Make the A-P "TRAP-DRI" system-protector a *must* on every job. It saves trouble, time, money later.
Stocked by leading refrigeration parts jobbers. For details, write for bulletin No. 107

AUTOMATIC PRODUCTS COMPANY

NORTH THIRTY-SECOND STREET • MILWAUKEE 10, WISCONSIN
EXPORT DEPT. • 13 E. 40TH ST., • NEW YORK 16, N. Y.

ap Dependable

...ES

Denny's River Electric Cooperative, Inc., Meddybemps, Me., $30,000 for lending to members to finance farmstead plumbing and the purchase and installation of electric appliances.

Malheur Cooperative Electric Association, Vale, Ore., $25,000 for lending to members to finance farmstead plumbing and the purchase and installation of electrical appliances.

Central Rural Electric Cooperative Association, Inc., Clearfield, Pa., $10,000 for lending to members to finance farmstead wiring and plumbing and the purchase and installation of electric appliances.

BARC Electric Cooperative, Millboro, Va., $10,000 for lending to members to finance farmstead plumbing and the purchase and installation of electrical appliances.

LIMIT ON MATERIAL INVENTORY TO FORCE GOODS TO MARKET

TO ASSURE a steady and rapid flow of new production of certain scarce household appliances to the housewife and, at the same time, to prevent the accumulation of excessive inventories of some scarce building materials at the producer level, the Civilian Production Administration today limited manufacturers' inventories on eighteen finished products.

The products include such articles as furniture, domestic mechanical refrigerators, washing machines, electric ranges and domestic sewing machines and vacuum cleaners, as well as some scarce building materials and photographic equipment.

At the same time inventory controls on manufacturers' stocks of 27 materials and components were tightened.

"What we are after is to see that scarce materials go to the manufacturer whose finished products go immediately to the consumer rather than to those who plan to withhold manufactured products awaiting possible price increases," CPA Administrator J. D. Small said.

"In no way do the special rules applying to the listed finished products or the general restrictions on processing in the regulation itself impede or restrict production. The purpose of the entire regulation is to restrict receipt of scarce materials by manufacturers or processors who are not speeding their finished products to the consumer. It is essential that those materials go to those who will put them to immediate use."

Priorities Regulation 32, the inventory control regulation which controls manufacturers' inventories of all materials and components, now contains an additional list of manufactured products. Manufacturers' inventories of these products must now be limited to either 30 days' production or a practicable minimum working inventory, whichever is less. This means that a manufacturer's inventory of the finished product may not be greater than his production of that product during the period of 30 calendar days, either the immediate preceding 30 day period or his monthly average production for the preceding three calendar months.

CLEAN AIR

A NEW electronic instrument, known as the Electro-Cell, can make it possible for inhabitants of industrial cities to breathe deeply and fill their lungs with clean air. This device uses static electricity to remove oil mist, smoke, and dust. Just as static electricity causes bits of paper to cling to a rubbed comb, an electrostatic field set up in the device electrifies foreign particles in the air and causes them to adhere to collector plates while the cleansed air passes on. Approximately 90 per cent of foreign matter in the air is removed by this process.

After "inhaling" heavily laden air, the collector first filters out the heaviest and largest foreign particles. Then the air moves through an ionizing unit, which electrifies each tiny particle of oil, smoke, and dust with a positive charge. Negatively charged collector plates, being of opposite polarity, immediately attract the particles. While the particles adhere to the plates, the "cleansed" air passes on and out the collector.

The oil mist and other foreign matter remain on the plates until the charge dissipates, then drop down into an oil reservoir. The oil, after being passed through a filter, can be re-used an indefinite number of times.

The device is being made at present for use in air conditioning systems.

IF YOU could trap and analyze the air in your living room on a sultry summer day, you would probably find the following: about 2500 billion dust particles, half a million bacteria, a few hundred pollen specks—and enough water to wash your hands and face.

15 Talking Points

PLUS SERVICE BY
REFRIGERATION WHOLESALERS
WHEN AND WHERE YOU WANT IT

GENERAL CONTROLS' Factory Branches and Refrigeration Wholesalers are located in principal cities. Their adequate facilities, the experience and skilled counsel of their personnel are as conveniently near to you as your telephone.

Of equal importance—when you are considering automatic temperature, pressure and flow controls—is that General Controls are *good* products, engineered right, built right, proved by performance.

There are talking points about General Controls' engineering and field service that should benefit you . . . as they are benefiting others in your line of business. A wire, letter or telephone call (see yellow classified section of principal city telephone directories) will bring a qualified Controls Engineer to your office.

FOR COMPLETE Specifications request new Catalog 52-C

34-1

GENERAL CONTROLS
801 ALLEN AVENUE GLENDALE 1, CALIF.

FACTORY BRANCHES: PHILADELPHIA • ATLANTA • BOSTON • CHICAGO • DALLAS • KANSAS CITY • NEW YORK • DENVER • DETROIT • CLEVELAND • PITTSBURGH • HOUSTON • SEATTLE • SAN FRANCISCO • MINNEAPOLIS • MILWAUKEE

See General Controls' extensive display at Booth 1122, "All Industry Refrigeration and Air Conditioning Exposition," Oct. 29 thru Nov. 1, 1946, at Cleveland.

FIRST EFFECTS OF OPA EXTENSION

UNDER the Price Control Extension Act of 1946 signed by the President on July 25, all ceilings go back to where they were on June 30, except where the new law specifically makes other provisions. These restored ceilings will serve as the basis for any adjustments made necessary as a result of the new act or because of any adjustments in process on June 30.

All industries and businesses, buyers and sellers covered by OPA price schedules, regulations or orders on June 30, are now automatically subject to those same regulations as if the new act had become law on June 30.

The agency has issued a supplementary order providing methods by which sellers operating under cost-plus regulatjons shall figure their prices. The action relates to all manufacturers, processors, service suppliers, wholesalers and retailers whose ceilings are set through application of mark-ups to the cost of goods and covers those situations where goods were delivered to them July 1 to July 25.

Sellers pricing their goods on the basis of their suppliers' ceiling prices must obtain written statements of these maximum prices from their suppliers before they may deliver these goods.

The fact that some price increases for particular commodities were about ready for issuance on June 30 is the reason for the provision allowing sellers to use ceiling prices fixed for suppliers by OPA before August 15.

In a number of instances increases put into effect during the period following June 30 are those which OPA would have authorized if the Act had not expired. The agency expects that all such actions will be issued by August 15, and considers that sellers operating under cost-plus regulations should be allowed to reflect these increases, when granted, in their own ceilings.

The order is entitled Supplementary Order 171—How Sellers Are to Treat Costs Incurred During the Period July 1 to July 25, 1946, effective July 26, 1946.

\$ \$ \$

JUNE PRODUCTION UP

REPORTING that industrial production recovered sharply in June and reached a new postwar peak, John D. Small, Administrator of Civilian Production, predicted today that a record volume of goods for consumers seems probable during the rest of the year.

The production chief's monthly report for June contained good news for housewives but a spotty record on some other products for which the public has been waiting.

While American industry exceeded prewar records in the output of table model radios, washing machines, vacuum cleaners, gas ranges, and electric irons, production of automobiles, trucks, tires, and farm equipment fell below May's levels.

Chief contributing factors to the June upswing were the rapid recovery in coal and steel production, the attainment of the highest all-time output of many consumers' durable goods, and the steady uptrend in building materials, especially lumber.

Reviewing the experience of the country during the inventory and price boom of 1919-1920, Mr. Small emphasized the continuing necessity for inventory controls which were strengthened by CPA last week.

The report named, as limiting factors on further production advances in hard goods, shortages of electrical equipment, copper products, and iron and steel products. Notable among these are fractional horsepower motors, copper wire, and castings.

Output of steel and copper products was generally up during June, although these items are still the economy's principal bottlenecks. Tin supplies are still not sufficient to permit relaxation of restrictions on its use.

BOX SCORE ON THE JUNE PRODUCTION OF CONSUMER GOODS

	JUNE	MAY	PREWAR
Refrigerators	210,000	196,000	309,000
Washing machines	193,000	185,000	158,000
Radios	1,378,000	1,185,000	1,180,000
Vacuum cleaners	177,000	166,000	156,000
Sewing machines	27,000	31,000	67,000
Electric ranges	46,000	31,000	47,000
Gas ranges	141,000	139,000	125,000
Electric irons (May)	480,000	473,000 (Apr.)	380,000
Water heaters (May)	225,000	200,000 (Apr.)	175,000

PERFORMANCE!

STANDARD

Model JS

EVAPORATORS

WITH REFRIGERATED SHELVES & STAINLESS STEEL CONSTRUCTION GIVING UNMATCHED

PERFORMANCE

IN THOUSANDS OF INSTALLATIONS

STANDARD SOLVES YOUR EVAPORATOR REPLACEMENT PROBLEMS

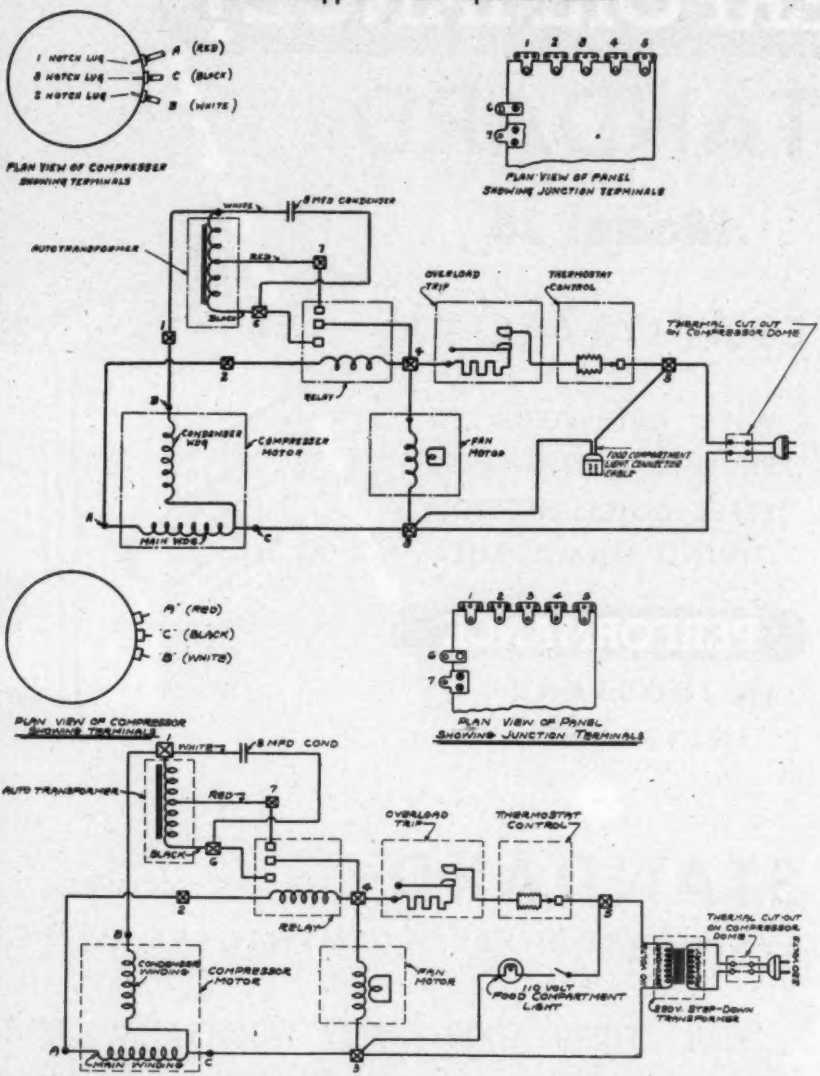
YOUR REFRIGERATION SUPPLY WHOLESALER HAS THEM

Standard Refrigeration Co.

20 North Wacker Drive — Chicago 6, Illinois

Wiring Diagrams For Majestic Units

Numerous requests for wiring diagrams of the Majestic units have been received recently which prompts their appearance here. There are six in all, and the remaining ones will appear in the September issue.



ABOVE: WIRING DIAGRAM FOR MODEL 101 AND 103 MAJESTIC UNIT CONDENSER TYPE 50-60 CYCLE 115 VOLT. BELOW: DIAGRAM FOR 101 AND 103 CONDENSER TYPE 50-60 CYCLE 220 VOLT.

WHEN SERVICE CALLS PUT THE HEAT ON . . .

DEPEND ON Kelvinator!

REFRIGERATION PARTS AND SUPPLIES

Conveniently Warehoused

Competitively Priced

It would be more pleasant to lie in the shade these hot August days . . . instead of sweating through the usual rush of hot-weather refrigeration service calls! While it may be impossible for you to escape those calls—you *can* turn for welcome relief to Kelvinator's 50 strategically located parts depots . . . where *complete stocks* of refrigeration parts and supplies are available at *competitive prices* . . . and fast delivery is possible in every locality.

NASH-KELVINATOR CORPORATION, Detroit.

Kelvinator Offers Valuable Help For Your Service Training Program

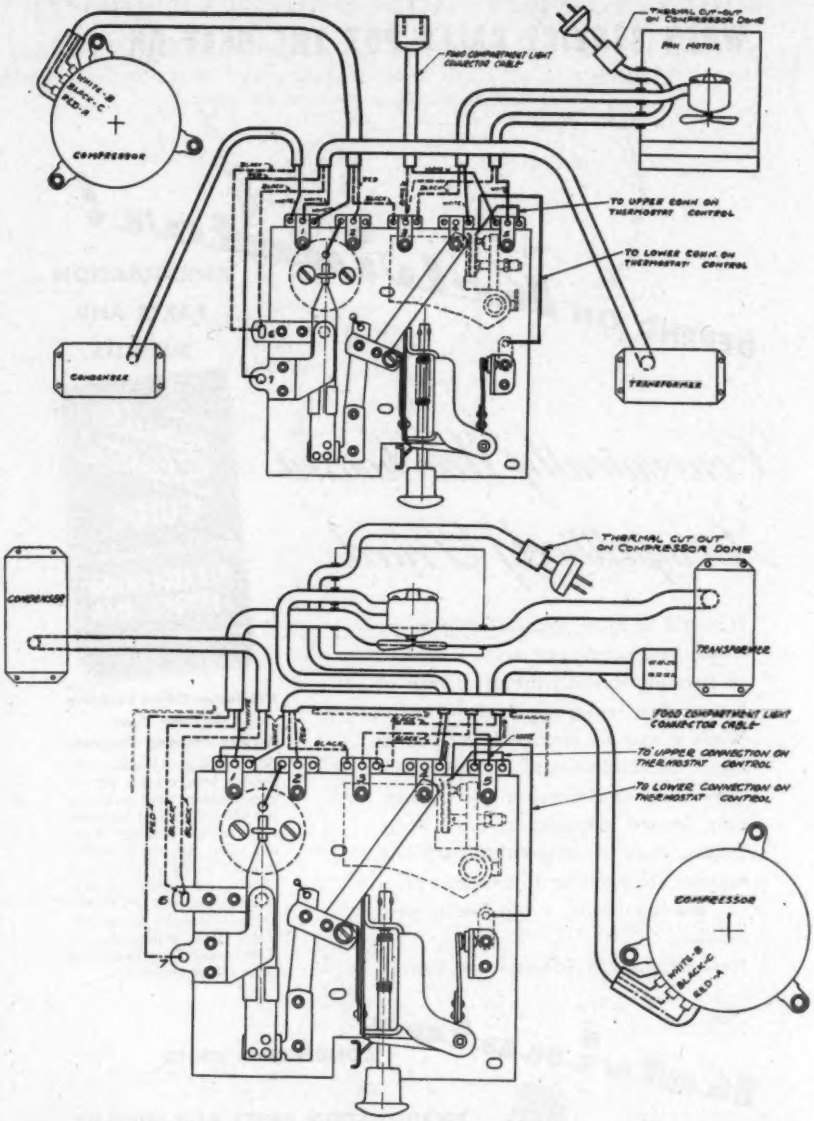
For training additional personnel, refrigeration service organizations will welcome the valuable aid of Kelvinator's service training material. One of these useful training helps is illustrated above—the sturdy, pocket-size, ready-reference "*Trouble Shooter's Guide for Refrigerator Service Men.*" Ask your local Kelvinator Distributor or Zone Office about it.

Kelvinator

CONDENSING UNITS

REFRIGERATION PARTS AND SUPPLIES

BUY KELVINATOR FOR ALL YOUR REFRIGERATION REQUIREMENTS



ABOVE WIRING DIAGRAM FOR MODEL 101 MAJESTIC UNIT, CONDENSER TYPE 50-60 CYCLE 115 VOLT. BELOW: WIRING DIAGRAM FOR MODEL 103 UNIT CONDENSER TYPE 50-60 CYCLE, 115 VOLT.

Available Now! These Repair Parts Fit MILLIONS of MOTORS

Every Repairman needs this Handy "On-the-Job" Assortment of Wagner Motor Repair Parts

Be a "One Tripper"—carry this kit in your car for "on-the-job" motor repairs. It contains fast-moving parts for repulsion-start induction brush-lifting and capacitor-start induction-run motors—up to and including ½ hp.

Order for each of your men. Use coupon at right. Also available at 325 authorized service stations.

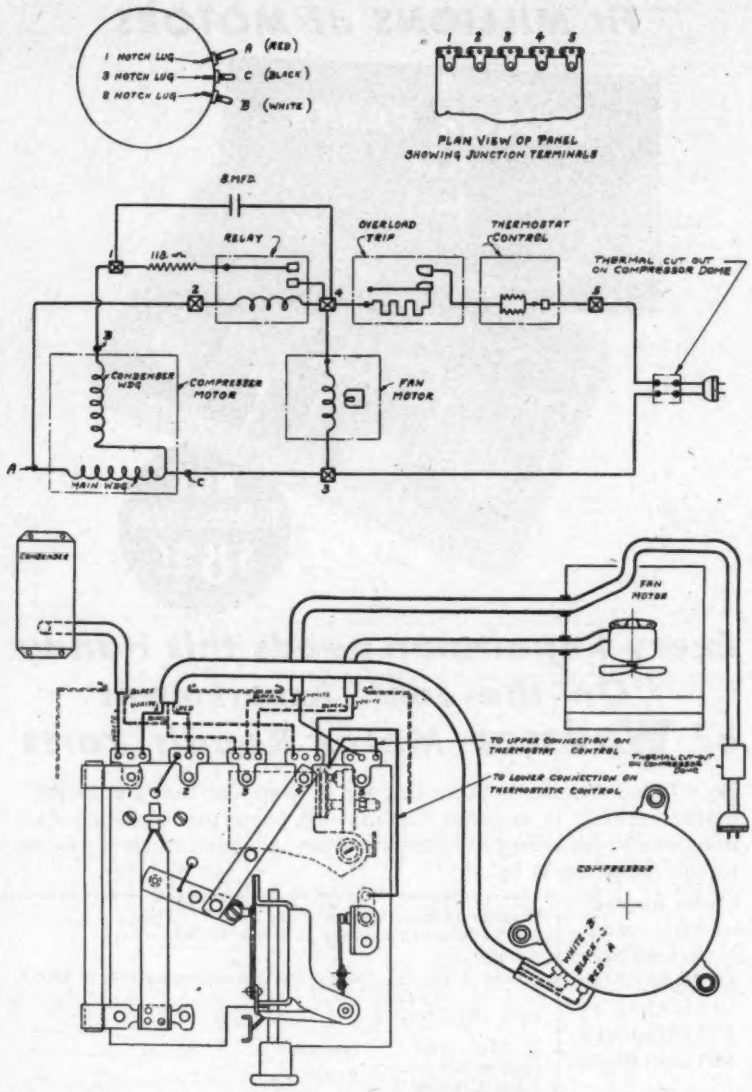
Wagner Electric Corporation Date_____
6433 Plymouth Avenue, St. Louis 14, Mo.
Gentlemen:
Please ship_____ (Quantity) Motor Parts Assortment M-1 at $8.57 each (Net) total $_____.

☐ Also send copy of Motor Parts Catalog MU-40.

Company_____
Address_____
City_____ Zone____ State_____

M46-19A

Wagner WE Electric



WIRING DIAGRAM FOR MODEL 102, RESISTOR CAPACITOR TYPE, 50-60 CYCLE 115 VOLT MAJESTIC UNIT.

NU-COIL
REFRIGERATOR
COIL
CLEANER

N O OBJECTIONABLE ODOR
U TMOST IN LABOR SAVING
C AN BE USED OVER REPEATEDLY
O FTEN IMITATED
I S PRACTICAL—QUICK ACTING
L ET YOUR WHOLESALER
EXPLAIN . . . . *NOW*

SKASOL CORPORATION
112 Glencoe Ave. Webster Groves, 19 Mo.

Refrigeration Service Engineers Society

Official Announcements of the activities of the International Society and Local Chapters appear in this department as well as articles pertaining to the educational work of the Society.

INTERNATIONAL HEADQUARTERS:
433-435 North Waller Ave., Chicago 44, Ill.

COMING CONVENTIONS

RSES Convention
Place: Hollenden Hotel.
City: Cleveland, Ohio.
Date: October 26, 27, 28, 29, 1946.
Secretary: H. T. McDermott, 433 N. Waller Ave., Chicago 44, Ill.

All Industry Exhibition:
Place: Cleveland Public Auditorium.
City: Cleveland, Ohio.
Date: October 28, 29, 30, 31, 1946.
Exec. Secretary: R. Kennedy Hanson, 1107 Clark Bldg., Pittsburgh, Pa.

Illinois State Association
Place: Stevens Hotel.
City: Chicago, Ill.
Date: September 21, 22, 1946.
Secretary: R. E. Saunders, 730 Towanda, R.F.D. 1, Bloomington, Illinois.

Alabama State Meeting
Place: Whitley Hotel.
City: Montgomery, Alabama.
Date: December 2, 3.
Secretary: W. C. Goodwin, 14 Country Club Drive, Montgomery, Alabama.

CANTON APPLIES FOR CHARTER

A MEETING of servicemen in the area of Canton, Ohio, was held on July 18 with a total of 37 in attendance. A previous meeting had been held for the purpose of considering the formation of a chapter in the area, but the July 18th meeting was the first regular meeting.

Temporary officers were elected as follows: Carl F. Howenstine, *President;* C. S. Barnaby, *1st Vice-president;* Frank Bennett, *2nd Vice-president;* Wm. F. Kuhns, *Secretary-Treasurer;* Ralph Curry, *Sergeant-at-Arms;* Carl W. Weaver, *Educational Chairman.* Board of Directors—Leonard Petry, Homer Essig, James Denton and James Johnson.

An application for charter was signed by 32 of those present, all of whom, in addition, filed applications for membership. Meetings will be held on the third Tuesday of each month.

HERMAN GOLDBERG PARTY

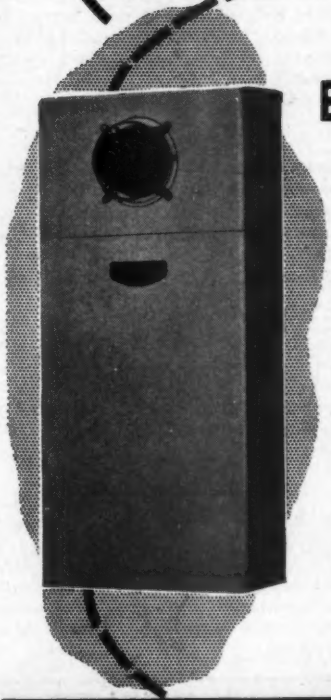
HERMAN GOLDBERG announces a party will be held in conjunction with the Illinois Association of RSES Convention on September 21st. Preliminary plans indicate the party will be in traditional Herman Goldberg style. Watch for further details.

NEW SERVICE COMPANY

J. R. KEEFE and Walter Brandborg, members of Oil Capitol Chapter, are moving to Coffeyville, Kansas, and opening a new commercial refrigeration company there at 1017 Walnut Street under the name of B & K Refrigeration Company. They will be representatives of the Hussman Refrigeration Company and will handle a complete line of market and grocery equipment, including meat slicers, scales, etc. They will remain members of the chapter.

Harry G. Frame, President of the Charleston chapter, left, receives the charter from Clarence Buschkopf, right, at the charter presentation meeting of June 11.

Filterpure
FOR REACH-INS
with AIR PURIFICATION



Combining many exclusive BETZ improvements

- ★ CENTRIFUGAL BLOWER CIRCULATION
- ★ VERTICAL AIR DISCHARGE
- ★ AIR PURIFICATION
- ★ SCIENTIFICALLY ENGINEERED COIL SURFACE AND AIR VOLUME FOR MAXIMUM PERFORMANCE
- ★ BAKED ENAMEL FINISH ON RUST-PROOF STEEL

Sold by

Leading Refrigeration Wholesalers

BETZ CORPORATION
HAMMOND, INDIANA

Outstanding Educational Program For 9th RSES Convention Oct. 26-29

INTERNATIONAL and local convention committees have been busy for months planning the educational program for the 9th Annual RSES Convention. Top flight speakers will headline a full 3-day educational conference.

Meeting in Cleveland recently the convention committee included representatives from Ohio Chapters, who will act as hosts of the convention. International Officers in attendance were: C. Buschkopf, *Acting President;* Warren W. Farr, *Director;* A. M. Fenwick, *Educational Committee;* Paul Reed, *Educational Committee;* and H. T. McDermott, *Secretary.*

Cleveland Chapter members present at the meeting were: Paul Spring, *President;* Thomas Way, *1st Vice-president;* R. Hollingsworth, *2nd Vice-president;* Chas. Zembower, *Secretary;* and Dick Burney, *Sergeant-at-Arms.* Representing Dayton Chapter were G. H. Brock, *President;* W. C. Reed and Mr. Harper. Columbus Chapter was represented by Earl Yockey, *President;* Southern Ohio Chapter by Forrest Poole, *Director;* and Youngstown Chapter by Carl Dieter.

Schedule of Meetings

The schedule of meetings will be as follows: Saturday, October 26: A.M.—Board of Directors Meeting. 2:00 to 4:30 P.M.—Opening of Convention and Business Meeting. 7:00 P.M.—Get Together Party.

Sunday, October 27: 9:30 to 12:30 P.M.—Educational Session. 1:00 to 1:30 P.M.—Luncheon (with speaker). 2:00 P.M. to 4:30 P.M.—Educational Session.

Monday, October 28: 9:30 to 12:30 A.M.—Educational Session. 1:30 to 4:30 P.M.—NACA Tour. 1:30 to 4:30 P.M.—Alternate tours. 8:30 P.M.—Dinner dance and entertainment.

Tuesday, October 29: 9:30 to 12:30 A.M.—Educational Session. 1:30 to 3:00 or 4:00 P.M.—Business Session.

The Ohio general convention committee is headed by Paul Spring, President Cleveland Chapter with George Schuld, Cleveland Chapter, as coordinating chairmen of all committees.

Educational Program

The educational program includes pertinent subjects of vital interest to the future of the refrigeration service business. Speakers assigned to the subjects will represent the outstanding leaders in their respective fields. Some of the subjects to be covered include: The Refrigeration Service Engineers Place in the Industry; Things We Need to Know About Foods; Modernization and Replacement of Obsolete Equipment; The R.S.E.S. Looks Ahead; The Two-Temperature Refrigerator; Modern Service Repair Shops; Protecting Your Business by Insurance; Recent Developments in the Thermal Expansion Valve; and Hermetic Units and the Service Engineer.

Entertainment

The lighter side of the convention program is receiving due consideration. For Saturday night a get-acquainted party is planned. The annual banquet will be held on Monday evening. A luncheon on Sunday will include an important speaker on a current subject.

Visits to Plants

Monday afternoon's session is being reserved for visits to Cleveland plants. A conducted tour of one of the government's aeronautical laboratories, which includes one of the largest industrial refrigeration installations, will be made.

Hotel Accommodations

The Hollenden Hotel—one of Cleveland's largest—is the official headquarters of the Society. Reservations for accommodations should be made promptly on reservation cards furnished to each member. Early reservations should be made to assure confirmed reservation.

Attend the RSES Convention
OCTOBER 26 TO 29
All Industry Refrigeration
and Air Conditioning Exposition
OCTOBER 29 TO NOVEMBER 1

How *Quickly* Can You Couple Four Small Threaded Connections?

That's All the Time You Need

To Install the TENNEY TS-1 Thermostatic Expansion Valve

Precise Control — NO FEELER BULB

Just a few plain words about how quickly you can install a Tenney TS-1 Thermostatic Expansion Valve. You simply couple four threaded connections to the proper suction and feed line terminals and the valve is ready to operate.

NO WAITING! • NO HUNTING! • NO CARTRIDGES!
NO INTRICATE CHARGING! • NO COMPLICATED CROSS-CHARGING!

WHY? **Because the Tenney TS-1 valve is the only thermostatic expansion valve in the world with precise control and no feeler bulb. • Ease of installation is but one of the *many* advantages of the Tenney TS-1 Valve, the simplified form of refrigerant control pioneered by Tenney engineers. • The Tenney TS-1 Valve will amaze *you* as it has others. It is engineered and manufactured for a long life of exceptional performance. • You'll find all the facts in Bulletin TV46. Send for one today.**

Do you have the complete Tenney Catalog?

TENNEY ENGINEERING, INC. U.S.A.

TENNEY ENGINEERING, INC.

26 Avenue B • Newark 5, N. J.

Telephone BIGELOW 8-3905

Manufacturers of Automatic Temperature, Humidity and Pressure Control Equipment

Educational Sound Films Schedule of Showings

UNDER the supervision of the International Educational Committee, a set of 16 sound films, grouped into 12 showings and accompanied by a set of slides, are being circulated among chapters as a part of their educational program. Films are all of a practical nature on servicing refrigerating systems. Titles of the films and their identifying numbers and the schedule of showings are listed.

Film Titles and Key Numbers

No.	TITLE
360	Principles of Refrigeration
438	Checking The System—Part I
439	Checking The System—Part II
440	Locating and Repairing Leaks
441	Adding or Removing Refrigerant
442	Removing and Ins'alling A Compressor or Condenser
443	Removing and Installing A Cooling Unit
444	Adjusting and Checking The Expansion Valve
445	Checking and Replacing A Float Valve
446	Checking The Electrical System
447	Quieting A Noisy Refrigerator
448	Adjusting and Repairing The Thermo-Expansion Valve
451	Servicing Water Cooled Condensers
449	Adjusting Pressure Actuated Temperature Controls
450	Adjusting Commercial Thermostatic Controls
452	Making and Repairing Tubing Connections

SCHEDULE OF SHOWINGS

AKRON, OHIO—Akron Chapter: Sept. 11—No. 444. Contact F. J. Roller, 357 S. Maple St., Akron 3, Ohio.

AURORA-ELGIN-JOLIET, ILL.—Tri County Chapter: Aug. 17—No. 443. Contact William J. McCarley, 607 N. Center St., Joliet, Ill.

BALTIMORE, MD.—Monumental Chapter: Sept. 11—No. 447. Contact George J. Roche, Roche & Hull Appliance Corp., 1029 Cathedral St., Baltimore 1, Md.

BATON ROUGE, LA.—Louisiana Chapter: Sept. 6—No. 444. Contact E. A. Summer, 3867 N. 33rd St., Baton Rouge 5, La.

BIRMINGHAM, ALA.—Birmingham Chapter: Aug. 21—No. 438-439; Sept. 18—No. 440-441. Contact C. S. Tucker, 2405, 12th Ave., N., Birmingham, Ala.

BLOOMINGTON, ILL.—Corn Belt Chapter. Aug. 14—No. 447; Sept. 11—No. 448-451. Contact Harold Mason, 306 W. Wood St., Bloomington, Ill.

CHARLESTON, W. VA.—Charleston Chapter: Sept. 10—No. 443. Contact H. G. Frame, 1105 Washington St. W., Charleston 2, W. Va.

CHICAGO, ILL.—Chicago Chapter: Sept. 10—No. 445. Contact D. D. Orr, 332 S. Hoyne Ave., Chicago, Ill.

CLEVELAND, OHIO — Cleveland Chapter: Sept. 10—No. 360. Contact Robert Whitney, c/o Williams & Co., Inc., 3700 Perkins Ave., Cleveland 14, Ohio.

COLUMBUS, OHIO—Columbus Chapter: Sept. 11—No. 445. Contact H. Grossman, 22 W. Naghten St., Columbus, Ohio.

DAVENPORT, IOWA — Mississippi Valley Chapter: Sept. 3—No. 446. Contact J. Vinje, 529 W. Second St., Davenport, Iowa.

DAYTON, OHIO—Dayton Chapter: Sept. 12—No. 446. Contact R. E. Warner, c/o Allied Supply Co., 359 W. Monument Ave., Dayton, Ohio.

DENVER, COLO.—Mile High Chapter: Aug. 19—No. 444; Sept. 16—No. 445. Contact R. C. Kimmel, 1524, 15th St., Denver 17, Colo.

DUBUQUE, IOWA—Key City Chapter: Sept. 4—No. 445. Contact R. E. Mueller, Stampfer Farm & Home Store, 7th and Iowa, Dubuque, Iowa.

EVANSVILLE, IND.—Evansville Chapter: Aug. 29—No. 443. Contact C. E. Goad, 11 Main St., Evansville, Ind.

FLINT, MICH.—Motor City Chapter: Sept. 10—No. 360. Contact Wilbur Henderson, 3305 Gratiot, Flint 3, Mich.

FORT WORTH, TEXAS—Cow Town Chapter: Sept. 12—No. 443. Contact P. D. Cato, Texas Refn. Supply Co., 1410 Commerce St., Fort Worth, Texas.

FRESNO, CALIF.—Fresno Chapter: Sept. 12—No. 440-441. Contact N. N. Leas, c/o Cond. Air & Refn. Co., 249 N. H St., Fresno 3, Calif.

GRAND RAPIDS, MICH. — Furniture City Chapter: Sept. 3—No. 445. Contact M. D. Thiebout, c/o Consumers Power Co., 450 Market, S. W. Grand Rapids, Mich.

HARTFORD, CONN.—Central Conn. Chapter: Aug. 26—No. 446. Contact Stanley N. Baldwin, c/o Joseph Simons Co., 271 Sheldon St., Hartford, Conn.

HUNTINGTON, W. VA.—Tri State Chapter: Sept. 10—No. 444. Contact A. W. Albertsen, 314 Eleventh St., Huntington 14, W. Va.

JACKSON, MISS.—Magnolia Chapter: Aug. 28—No. 360. Contact A. E. Shafer, P. O. Box 1509, Jackson 112, Miss.

KANSAS CITY, MO.—Kansas City Chapter: Sept. 4—No. 446. Contact C. R. Visger, 7715 Brooklyn, Kansas City, Mo.

LA CROSSE, WIS.—La Crosse Chapter: Sept. 6—No. 447. Contact George Brenstein, 408 Copeland Ave., LaCrosse, Wis.

LANSING, MICH.—Wolverine Chapter: Aug. 26—No. 445; Sept. 9—No. 438-439. Contact R. Kellogg, 616 Jessop Ave., Lansing, Mich.

LIMA, OHIO—Lima Chapter: Aug. 15—No. 440-441; Sept. 19—No. 360. Contact Allied Supply Co., Attn. Dan Shively, 122 S. Union St., Lima, Ohio.

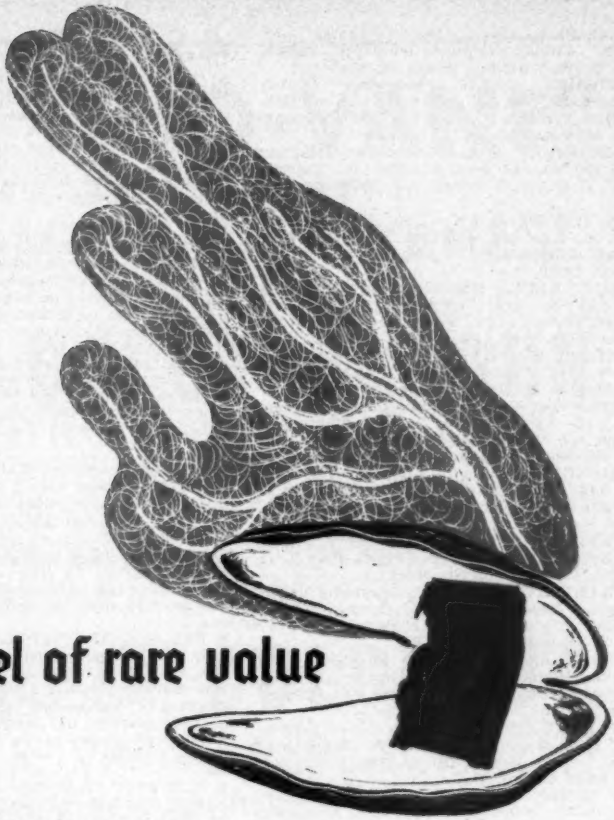
LOGAN, UTAH—Utah Aggie Chapter: Sept. 4—No. 438-439. Contact J. Cecil Sharp, c/o Utah State Agricultural College, Logan, Utah.

LONG BEACH, CALIF.—Long Beach Chapter: Sept. 11—No. 442. Contact Van's Supply, 250 E. 12th St., Long Beach, Calif.

LOS ANGELES, CALIF.—Los Angeles Chapter: Aug. 28—No. 440-441. Contact Merle F. Stutzman, 3464 W. First St., Los Angeles 4, Calif.

LOUISVILLE, KY.—Colonels Chapter: Aug. 15—No. 445. Contact J. M. Berry, c/o F. H. Lagsenkamp Co., 339 W. Main St., Louisville 2, Ky.

MADISON, WIS.—Madison Chapter: Sept. 12—No. 452. Contact Ref. Maintenance Corp., 731 University Ave., Madison 5, Wis.



Jewel of rare value

Mills Compression Equipment
gleams brightly on the profit side for you

MILLS INDUSTRIES, INCORPORATED · REFRIGERATION DIVISION

4100 FULLERTON AVENUE · CHICAGO 39, ILLINOIS

MIAMI, FLA.—Greater Miami Chapter: Aug. 22—No. 440-441. Contact Orville W. Brown, 1044 N. W. 65th St., Miami 38, Fla.

MONTEREY, CALIF.—Monterey County Chapter: Sept. 11—No. 438-439. Contact Robert Hall, c/o Tice Electric Co., 500 Del Monte Ave., Monterey, Calif.

MONTGOMERY, ALA.—Montgomery Chapter: Aug. 19—No. 443; Sept. 16—No. 444. Contact W. C. Goodwin, 8 Forest Ave., Montgomery, Ala.

NEW HAVEN, CONN.—Elm City Chapter: Sept. 6—No. 442. Contact T. B. Howell, United Illuminating Co., 221 George St., New Haven, Conn.

OMAHA, NEBR.—Missouri Valley Chapter: Sept. 19—No. 442. Contact C. M. Flohr, c/o United Motors Serv., 27th Ave. and Harney St., Omaha, Nebr.

PEORIA, ILL.—Illinois Valley Chapter: Sept. 13—No. 442. Contact Bryson Roth, 300 South Washington St., Peoria, Ill.

PORTLAND, ORE.—Multnomah Chapter: Aug. 15—No. 438-439. Contact Wayne C. Miller, c/o Minneapolis Honeywell Regulator Co., 122 N. E. Broadway, Portland, Ore.

READING, PA.—Reading Chapter: Aug. 20—No. 442; Sept. 17—No. 443. Contact O. A. Larson, c/o Larson Supply Co., 326 Buttonwood St., Reading, Pa.

ROCKFORD, ILL.—Rockford Chapter: Aug. 19—No. 445; Sept. 16—No. 446. Contact L. L. Sturch, 1915 Vernon St., Rockford, Ill.

SACRAMENTO, CALIF.—Sacramento Valley Chapter: Sept. 5—No. 442. Contact George M. Bale, c/o Assoc. Refr. & Equip. Co., 1717 Eye St., Sacramento 14, Calif.

ST. PETERSBURG, FLA.—Sunshine City Chapter: Sept. 3—No. 440-441. Contact R. B. Schroeder, Florida Power Corp., St. Petersburg 1, Fla.

SALT LAKE CITY, UTAH—Beehive Chapter: Aug. 29—No. 443. Contact W. W. Walker, c/o G. E. Supply Corp., 310 W. 2nd South St., Salt Lake City, Utah.

SAN DIEGO, CALIF.—San Diego Chapter: Aug. 15—No. 448-451. Contact C. E. Anderson, 209 West E St., San Diego 1, Calif.

SAN FRANCISCO, CALIF.—Golden Gate Chapter: Aug. 22—No. 438-439. Contact Ray Winther Co., Attn. George N. Eskra, 1245 Folsom St., San Francisco 3, Calif.

SANTA ANA, CALIF.—Orange County Chapter: Aug. 22—No. 360. Contact R. L. McCain, 615 E. Bishop St., Santa Ana, Calif.

SCRANTON, PA.—Scranton Chapter: Sept. 4—No. 360. Contact W. D. Franklin, 1632 Sanderson Ave., Scranton 9, Pa.

SPRINGFIELD, MASS.—Western Massachusetts Chapter: Aug. 27—No. 442. Contact Harold C. Lambert, Room 449, 31 Elm St., Springfield 3, Mass.

TOLEDO, OHIO—Greater Toledo Chapter: Sept. 11—No. 440-441. Contact Paul D. Sizer, P. O. Box 69, 1216 Adams St., Toledo, Ohio.

TULSA, OKLA.—Oil Capital Chapter: Aug. 28—No. 445. Contact R. W. Palmer, 820 E. 3rd St., Tulsa 3, Okla.

WATERLOO, IOWA—Cedar Valley Chapter: Aug. 28—No. 444. Contact J. Adams, c/o Herbert Refr., 710 Lafayette St., Waterloo, Iowa.

WILKES-BARRE, PA.—Wyoming Valley Chapter: Sept. 10—No. 449-450. Contact A. Reese, 104 Slocum St., Forty Fort, Pa.

R.S.E.S. Chapter Notes

● CHARLESTON CHAPTER, *Charleston, W. Va., July 10*—Held at the Daniel Boone Hotel the meeting was attended by 18 members. One new member, C. A. Griffis, was accepted in the chapter. The educational program scheduled for the evening was one of the educational films, but due to the inability to secure a projector the showing had to be postponed.

● DAYTON CHAPTER, *Dayton, O., July 11*—Thirty-five were in attendance and one of the first orders of business was the reading of the pre-convention meeting report and a report on the code committee meeting with the City Commissioner. It was decided during the meeting that there would be just one meeting per month during July and August, with two meetings being resumed during September. One of the educational films provided the educational program for the evening, after which a general "bull session" took place.

On June 13 another of the educational films was shown, along with a travel film in color which showed scenes of South America.

On June 27 the meeting was held at the Allied Supply Company, where five new members were accepted to membership. Earl Jennings, speaker of the evening, gave an informative talk on the construction, installation and servicing of Temprite equipment.

● DES MOINES CHAPTER, *Des Moines, Ia., July 7*—The chapter held its annual picnic on this date at McHenry Park, but the weather was extremely hot and the attendance small. Norbert G. Damon has resigned as secretary of the chapter and until the next annual election of officers H. R. Brewster will take over his duties.

● ELM CITY CHAPTER, *New Haven, Conn., June 7*—The entertainment committee, headed by Fred Montesanto, reported on the 3rd annual outing and the progress made to date. The chapter voted to send a delegate to the National Convention in Cleveland in October at the chapter's expense. Bernard Packtor, President of Fairfield County Chapter was a guest of the evening and invited members of the chapter to attend their all-day outing to be held on the following Saturday. The formal installation of newly elected officers took place under the guidance of President Arthur Murphy, assisted by Sergeant-at-Arms Joseph Berg. On the educational program of the evening the second in the group of service films was shown, together with some entertainment films.

For the July meeting, L. H. Harris, Publicity Secy. reports as follows: "Ye Scribe must woefully confess that ye personal business kept us from attending this meeting. This report must therefore consist of but hearsay (which any mouthpiece will inform you is unacceptable). Excuses to the contrary, good, bad or indifferent many of us failed our duty and did not show up at aforementioned club rooms and so missed another good movie show. Of course the usual witty debates were also carried on minus the ears of us who failed to arrive.

THE NEW "DUO-VANE"

DOUBLE-DUTY

COMPRESSOR VANES

FOR

COLDSPOT & BOHN

WITH REVERSIBLE FACES

PRICE $1.00 SET (4 PCS.)

4 SETS—90c EACH **10 SETS—80c EACH**

AVAILABLE IN 3 SIZES: 1"—1¼"—1½"

"CHEXIT" COLDSPOT

CHECK VALVE REPLACEMENT

- **INSTALL IN 5 MINUTES**
- **NO CUTTING OR FLARING**
- **WILL NOT LEAK**

PRICE $2.50 EACH

Lots of 4—$2.25 Ea. Lots of 10—$2.05 Ea.

—DON'T TAKE CHANCES—
USE "DUO-VANE" & "CHEXIT"

ASK YOUR JOBBER

MFD. BY

R. ROBINSON REFRIGERATION CO.

425 VAN SICLEN AVE. B'KLYN 7, N. Y.

"Dame Rumor (of course she's a dame; haven't you heard the three best ways to spread news are telephone, telegraph and telawoman); where was I when that sneaked in?—well anyway she said, that's what the woman said, she said that we missed seeing what happens when we place a long distance call and 'Mert' looses it so badly we finally give up anyway because we forgot ourselves who it was we wanted to talk to in the first place; or sumpin'. Seriously we've heard that an interesting telephone film was shown giving the complete story of what must take place before and during a long distance telephone conversation. The two films from the RSES series, 'Locating & Repairing Leaks' and 'Adding or Removing Refrigerant' were shown and enjoyed as well. So now aren't we sorry we didn't get there!

"With present shortages it must be a false report that steak sandwiches were served but other reliable sources of info have it that they did have an over-supply of the usual delicious 'makins' of a good snack following the show.

"No real important business was discussed but we are all looking forward to our annual picnic on the 11th of August coming. So we'll see you all later on that score."

● FAIRFIELD COUNTY CHAPTER, *Fairfield County, Conn., July 8*—President Bernard Packtor resigned as President of the chapter due to his inability to be in attendance. His present job takes him out of town a great deal and it is, therefore, impossible for him to attend the regular meetings. Mr. Packtor's resignation was accepted and Richard Chase, 1st Vice-president, elected to fill his place. The balance of the evening was taken up with routine business of the chapter.

● FLORIDA WEST COAST CHAPTER, *Tampa, Fla., July 11*—Newly elected officers for the year were installed by retiring Acting President H. B. Adams as follows: J. E. McGraw, *President;* H. B. Adams, *1st Vice-president;* Sam Graziano, *2nd Vice-president;* W. A. Bingham, Jr., *Secretary;* H. M. Carryl, *Treasurer;* George Mitchell, *Sergeant-at-Arms;* W. A. Bingham, Sr., *Educational Secretary.* Board of Directors—George Miranda, Joe Stephens and J. R. Berryman.

Considerable time was spent on routine business of the chapter at the close of which A. B. Dunbar of Ranco, Inc. gave an informative talk on the model 1559 two-temperature control. Mr. Dunbar also provided some helpful suggestions on how to operate a successful chapter.

● FOX RIVER VALLEY CHAPTER, *Fond du Lac, Wis., June 26*—The annual election of officers resulted in the following being elected to serve during the coming year: Fred Hansen, *President;* C. E. Kelm, *Vice-president;* Ardon Abraham, *Treasurer;* Fred Weigt, *Secretary;* Ed Schroeder, *Sergeant-at-Arms;* Ernest Mueller, *Dist. Rep.* The Chairman of the educational committee was instructed not to arrange any educational features for the coming two months because social affairs would occupy most of the meeting nights of that period.

On July 10th the newly elected officers were installed by Acting National President Clarence Buschkopf.

● KANSAS CITY CHAPTER, *Kansas City, Mo., June 5*—This meeting, attended by 14 members and 6 visitors, was high-lighted by the showing of a special film entitled "Bristles to Brushes" and another "Removing and Installing the Evaporator."

The June 19th meeting was devoted almost entirely to business matters and the high-light of the July 3rd meeting was a film entitled "Checking the Electrical System" followed by a general discussion on the subject.

● KERN COUNTY CHAPTER, *Kern County, Calif., July 11*—After the business of the evening was completed, P. B. Montgomery gave a short talk on the use of the Mollier Chart as applied to refrigeration.

● LOUISIANA CHAPTER, *Baton Rouge, La., June 21*—The annual election of officers was held at this meeting with the following results: O. J. Crow, *President;* P. V. Ames, *1st Vice-president;* J. E. Hernandez, *2nd Vice president;* A. E. Kaiser, *Treasurer;* W. C. Selser, *Secretary;* R. G. Buckles, *Sergeant-at-Arms;* E. A. Summers, *Educational Chairman.*

● MIAMI CHAPTER, *Miami Fla., June 13*—Officers for the coming year were elected at this meeting as follows: J. D. Nail, *President;* R. Smith, *1st Vice-president;* P. E. Ritchie, *2nd Vice-president;* A. L. Bizzell, *Treasurer;* O. W. Brown, *Secretary;* W. W. Kelley, *Sergeant-at-Arms.* Board of Directors—Messrs. Leach, Harris, Turpin, Sturgis, Runyon, Comfort and Brophy. There were 51 members, 2 visitors and 5 new applicants for membership present.

Mr. Brown, Chairman of the educational committee, reported that the Automatic Products Company had sent charts and catalogs and various cut-away models for the discussion of the chapter. Also that the Gilmer Belt Company was setting up a lecture program for the benefit of the chapter. A report was made on the progress of the refrigeration code for the city of Miami, in which the chapter is taking an active part.

● MILE HIGH CHAPTER, *Denver, Colo., June 15*—The annual election of officers resulted in the following being elected: Ernest L. Martin, *President;* Roy Rallen Roush, *Vice-president;* R. L. Houghton, *Secretary;* C. M. Sisson, *Treasurer;* Norman Brown, *Sergeant-at-Arms.* Board of Directors—L. W. Barley, Ray Mehaffey and Russell Gritton. The new officers were installed immediately after election and carried on the balance of the chapter's business.

● MOTOR CITY CHAPTER, *Flint, Mich., June 25*—The annual election of officers resulted in the election of: John Dietz, *President;* Gilbert Abramson, *1st Vice-president;* Tharold B. Mansfield, *2nd Vice-president;* Owen O. Dobbs, *Secretary;* C. Babcock, *Treasurer;* Floyd Kithcart, *Sergeant-at-Arms.*

Mr. Klahn of the McQuay Coil Co. gave a short but very interesting talk on products of his company. Mr. Dietz, whose turn it was to provide the educational feature of the evening, gave an interesting presentation on the importance of the pressure-temperature relationship chart. Mr. Dietz was then installed as the new President of the chapter.

REFRIGERATION *Service Pointers*

The REFRIGERATION SERVICE ENGINEER REFERENCE MANUALS

A Book Every Serviceman Wants

230 SELECTED SERVICE "KINKS"

Practical, Ideas for Shop and Field Service

—here for the first time in handy book form—is a collection of over 230 practical, workable refrigeration service pointers. Any one idea used will more than pay, many times over, the small cost of $1.50.

• Service engineers have constantly sought this information. The "pointers" represent the combined practical experience of hundreds of servicemen—men who "know how" and who have worked out their problems in a practical "down-to-earth" manner. *It is the only book of its kind published.*

• How many times have you wanted an idea that you could use—to test equipment—something you could build in your own shop; or special shop equipment that would expedite your overhauling and rebuilding work; or special tools to save you time.

• This book has the answer to many of your questions. The book is a compilation of hundreds of suggestions which have appeared in monthly issues of The Refrigeration Service Engineer.

$1.50

USE THIS ORDER

Date.....

NICKERSON & COLLINS CO.,
433 N. Waller Ave., Chicago 44, Ill.

Enclosed is remittance for $1.50. Send REFRIGERATION SERVICE POINTERS to the following address:

NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

$1.50

● OIL CAPITOL CHAPTER, *Tulsa, Okla., June 19*—Some discussion was held on the possibility of printing a monthly newspaper by the local chapter. A committee was appointed to arrange the details and carry on the work. The chapter appropriated funds from the treasury which are to be used toward paying the expenses of a delegate to the National Convention. Mr. Bradford won the sweepstakes of the evening and the meeting adjourned.

● ROCKFORD CHAPTER, *Rockford, Ill., July*—Motion pictures were the feature of this meeting, with very good attendance of both members and prospective new members. Plans were thoroughly discussed for the annual outdoor get-together to be held at Macktown Forest Preserve.

● SAN DIEGO CHAPTER, *San Diego, Calif., July 18*—In addition to showing the RSES films, the educational committee presented a film prepared by General Electric Co. on home freezing of foods. All present were very enthusiastic over it. During the evening five new members were initiated and one charter member, Fred Schlerf, was reinstated. Announcement was made that the certificate examination papers had arrived and the educational committee were instructed to make arrangements for the time and place of the examination. The business meeting was adjourned with a discussion of subjects and material for future meetings. After the meeting, sandwiches and drinks were served and the balance of the evening was taken up with a "bull session."

● SPRINGFIELD CHAPTER, *Springfield, Mo., June 26*—The attendance at this meeting was exceptionally good in view of extremely hot weather. 30 members were in attendance. The educational program was on the subject of dehydration by C. R. Black, followed by a soldering demonstration by Eddie Joern. Both of these men are representatives of Mueller Brass Co., and both were enthusiastically received because of the educational value of the talks they made.

● SUNSHINE CITY CHAPTER, *St. Petersburg, Fla., June 4*—The annual election of officers for the coming year was held with the following being elected: P. D. Shaw, *President;* R. T. Duke, *Vice-president;* R. B. Schroeder, *Secretary;* R. V. Money, *Treasurer;* Barney Gaylard, *Sergeant-at-Arms;* R. C. Salter, *Educational Chairman.* The balance of the evening was spent in routine business matters.

On June 18th, R. C. Salter, Chairman of the educational committee, conducted a discussion on lectures 29 through 34.

On July 2nd, business was dispensed with in favor of the showing of educational films and the lengthy discussion which followed. The pictures made quite a hit with the attendance and all were enthusiastic in their praise of its educational value.

On July 16th R. C. Salter resigned his position as Educational Director because he is giving up the refrigeration business and returning to the aircraft industry. The newly elected officers were installed to office, then L. K. Wright of Alco Valve Co. gave an informative talk on valves and their operation, answering many questions from the floor. A late visitor of the evening was Judson P. Smith of Penn Switch Co., who gave a short talk on switches.

● TRENTON CHAPTER, *Trenton, N. J., July 17*—After the business session was completed the meeting was turned over to general discussions, the first of which was an open forum on present price conditions, which proved both interesting and entertaining. There was also a short discussion on service problems which became quite lively.

● TWIN CITIES CHAPTER, *Minneapolis, Minn., June 11*—The spring party, to be held at Carver Beach on Lotus Lake, came in for considerable discussion. Seven new members were accepted to membership and Mr. Phillips brought up the subject of the ordinance prohibiting the use of methyl chloride in refrigeration systems. The matter was referred to the code committee for further study and discussion will be held at a future meeting.

● WESTERN MASSACHUSETTS CHAPTER, *Springfield, Mass., June 11*—Mr. Klug, a representative of Westinghouse Electric & Mfg. Co., provided the educational feature of the evening with a talk on home freezers. His talk was illustrated with charts.

The June 25th meeting enjoyed a good attendance in view of the hot weather and featured two of the series of educational films. The sound projector was loaned to the chapter by B. H. Spinney and Co. of Springfield. After these films were shown Mr. Ludwig of Alco Valve Co. provided an informative talk on Alco valves and their applications.

● WORCESTER CHAPTER, *Worcester, Mass.*—The May meeting was the night for nominations, campaign speeches, balloting and counting. The new officers were surprised at the honors conferred upon them.

The June meeting was held to present the new officers to those who were left to applaud. To insure a crowd, many brought their wives and shared a dinner with them. President Tierney awarded each lady a rose, cut from Mrs. Tierney's garden. The hotel just cut "four roses" for the men. Vocal selections by Harold Walker of Detroit Lubricator and a dance revue by Ann Dreen & Ensemble from Hartford provided the entertainment.

No July meeting. The boys were too busy. Not that the weather was above normal, but a batch of freezer cabinets were loaded onto Worcester by manufacturer's agents, D-T-U's, and cousins from Peoria, but outside a bill of lading and a sight draft there were no other signs of operation. But, everything balanced. The sellers have the merchandising profits and the servicemen have the $2.00 call and the headaches.

The perennial August meeting will be held at the home of President and Mrs. Tierney. While the boys finish building the greenhouse, Mrs. Tierney will prepare a garden supper, plus hamburgers and hot dogs. Bring your working teeth—you will need them for the corn-on-the-cob.

TIME TELLS THE STORY . . .
Users everywhere praise the performance of Sanitary Quicfrez. And remember, thousands of Sanitary freezers were in use before Pearl Harbor.
BUILT BETTER TO LAST LONGER
SANITARY REFRIGERATOR COMPANY
FOND DU LAC, WISCONSIN
SANITARY
Quicfrez

THERMOBANK EVAPORATOR IN FREEZER ROOM OF A PACKING PLANT

LOW TEMPERATURE
DEFROSTING

Automatic as clockwork

THERMOBANK

. . . REQUIRES NO ATTENTION

Defrosting is completely automatic and on a time schedule. No hand valves need be opened or closed; no coils need be scraped; no goods need be removed.

. . . MAINTAINS PEAK EFFICIENCY

Never loaded with frost, coils operate at peak efficiency always. Power is saved. Temperature fluctuations are minimized.

HOW IT WORKS

The THERMOBANK System consists essentially of a forced convection cooling unit, time controls and a heat reservoir. A portion of the heat extracted during the refrigeration cycle is "Banked" in the reservoir from which it is released to the refrigerant during the defrost cycle.

Send for Bulletin TV34BR8

2

KRAMER-TRENTON Co.
TRENTON 5 • NEW JERSEY
HEAT TRANSFER EQUIPMENT

SOUTHERN SERVICE SHOP

(Continued from page 38)

canvassed by two salesmen trained in the sale of new equipment and of rebuild or other major work. Salesmen work on a percentage basis. Advertising is carried in local and out-of-town papers on both sales and service work. Sales include, in addition to refrigeration and air conditioning, such items as attic and ventilation equipment, commercial and Fluorescent lighting, household lighting and small appliances such as toasters, irons, etc.

Electrical Contracting Included

The company also does electrical contracting such as commercial and house wiring which goes well with the refrigeration installation work because where additional wiring is required for the new equipment the firm can handle the entire job.

All men employed by the firm are able to "double in brass." For instance the motor rewind man is also an expert carpenter. The commercial serviceman can double in electrical work or radio service. The domestic repairman does lathe work and motor repairs other than rewinding, and the radio repairman takes care of all the oil burning refrigerators.

Employees Cooperate

Mr. Carter is sole owner of the business and is proud of his accomplishments of the 12 years he has been in business. He attributes much of it to the harmony and cooperation among his men who are imbued with the idea that they as well as he are equally responsible for the development of the company. Mr. Carter, in return, endeavors to see that his men advance with the company. Accurate records are kept at all times and the men kept informed on the business they do each month.

To the newcomer starting his own business Mr. Carter has this to say. "It will probably be tough even now to start a new business and get established, the service business is never easy, but if you are constantly on the alert for new business while at the same time offering your old customers the best service available, you will finally get there. Wherever possible, get into community work, join clubs such as the Lions, Rotary or others, and take an active interest in your town or city. It pays good dividends."

DOWN TO BUSINESS

(Continued from page 31)

The same procedure can be applied to your old commercial customers, but here, number one approach is through personal contact. A jaunt down the street to Joe, the Grocer, or to Maisie's Deluxe Ice Cream parlor, or a drive out to Miller's dairy farm might do you a lot of good. Then a follow-up series of letters and postcards will carry more weight.

Bear in mind that your newspaper solicitor, your local printer, and non-competitive business friends can help you build your advertising approach. The first two fellows are in the business and have accumulated knowledge which you have every right to call on.

Also don't lose sight of the fact that advertising is wrapped up in the word *repetition*—repetition of your name, repetition of the kind of service you offer, repetition of anything that identifies you and your business.

Business-getting is a matter of cultivating — very much like you raise tomatoes in a Victory Garden. You've got to be continually digging around — routing out the worms (no implied reference to your competitors), letting your tomatoes know that you are on hand to help them grow. Once the seed is planted, once you have some pretty healthy prospects or revived old customers, keep at them by personal contact, by newspaper advertising, by direct-mail, by whatever advertising technique you can use that proves out workable. Then some day you will have a pretty healthy harvest of tomatoes—and they'll be all yours!

Next issue we'll see what's the good in good will advertising—the kind that most hard-headed business men are hard-headed about. And we'll check into keeping records —which is part of the art of making a record for yourself in business.

Parting thought (with apologies to Mary Roberts Rinehart from whom the following idea, if not the exact words, has been borrowed): Unless your realize the value of advertising, and put it to work for yourself, you may as well be content with being a very small patch on the seat of your community.

BLASTS OF COLD AIR!

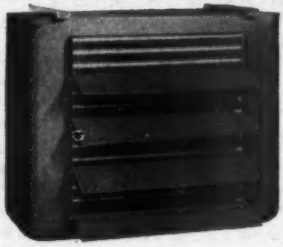
THE RIGHT VOLUME OF COLD AIR FOR EACH PARTICULAR JOB

Rempe

OVERHEAD BLOWER UNITS

for low temperature cooling

- HOUSING . . . Bonderized steel
- TUBES AND BENDS . . . Full area—no obstructions
- COILS . . . Tinned copper or seamless steel tubing
- SIDES AND BOTTOMS . . . Well insulated
- LOUVERS . . . Individually adjustable
- FANS . . . Proper size for the right air velocity
- MOTORS . . . Enclosed silent type.



Every feature of Rempe Overhead Blower Units for Low Temperature Cooling has been designed to provide most efficient refrigerating conditions.

Every part of this unit has been analyzed and checked for maximum trouble-free service to meet present day operating standards.

Write today for the NEW COMPLETE ENGINEERING CATALOG from which you can easily select the right unit for every job.

REMPE COMPANY
358 No. Sacramento Blvd., Chicago 12, Ill.

STOP

TERMINAL LEAKS COMPLETE KIT
(3 Terminals)

$5.50

PAT. PENDING

Lower Prices in Quantity

Please Mention Jobber's Name

Coldspot Couplings and Dome Gaskets. Immediate Delivery. 25 cents each in lots of 10

WAGNER REPLACEMENT TERMINALS

A research development designed to repair terminal leaks on sealed units, instantly and permanently on the job—

IN 5 MINUTES

No special tools or equipment required. Now available for Crosley F 12. Soon available for Frigidaire, Westinghouse, Norge, Kelvinator, and TECUMSEH (Chieftain) UNITS.

Territories Open to Manufacturers Representatives

KINGS COUNTY REFRIGERATION CO.
1257 Flatbush Ave., Brooklyn 26, N. Y.

Firm .....

Address .....

Jobber .....

Send Check or Money Order
We Will Ship Prepaid

No. of Complete Kits..... No. of Couplings.....

No. of Dome Gaskets..... ☐ C.O.D. ☐ Pre-Paid

PHARMACEUTICAL BOX

(Continued from page 28)

any required "ray filters" installed, thus allowing clear vision and accessibility without undue loss of cold in the entire cooled area.

"Controlled Cold Flow" is metered into any compartment's "brine lines" by the control valve for each separate compartment, even as was specified for the "Controlled Cold Anesthesia" individual pads. These "Controlled Cold Flow" valves' adjustment handles being accessible on the outside wall of the pressure line side.

By use of this "Controlled Cold Flow" system adequate refrigeration areas can be maintained at distinctly different levels of temperature independent of each other; and the "brine pot reservoir" temperature need not be kept much below freezing unless desired, thus giving a very economical cycle of operation.

The use of this system gives a possible control of temperature per compartment of less than 2 degrees plus or minus, with no defrosting necessary, and without dehydrating and sliming. Also "separate-isolation-compartment" cooling, with sterile lamps where needed.

Ice cubes for patients should never be made in the same box area as the serums, biologicals, etc., are cooled in. Yet, under present conditions in hospitals this is often the case in the utility room.

Some biologicals should not be handled or cooled in the presence of other biologicals. Yet this is the only way at present and when certain highly volatile substances are also in the same general cooling compartment, trouble is ahead for you and your families, besides the millions of others depending upon the doctors and the pharmacists.

We, you and I, must not allow this condition to exist much longer, and it is up to the manufacturers to get busy, now that the blueprint pathway is shown. Any laboratory, hospital, doctor, druggist, etc., will welcome and find great use for this advance. It's a specialized field wide open to those of enterprise.

Must we and a few others like Louise Bruner and Dr. A. Wyss, Dean of the School of Pharmacy, Western Reserve University, Cleveland, and many of the 50,000 retail druggists like A. F. Zimdahl of Buffalo, N.Y., Rudd's Drug Store, Cleveland, as well as doctors, clinics, hospitals and institutions, public school clinics and factories, also the wholesaler and laboratories, stand alone and sound a clarion call to the desert moon, waiting for the echo to return? Such a business!

* * *

MARINE TROUBLE SHOOTER

(Continued from page 26)

coil I opened up, the fish room, the frost back appeared almost immediately.

"Now what gives here?" The Chief had installed all new cages, and the power elements were all O.K. "What in blazes could the trouble be?" Well, at least I knew where the trouble was, now all I had to do was find out what it was. I unbolted the power element and examined the diaphragm and cage. Everything seemed to be all right, and I had just about decided that the trouble must be somewhere else, when I found it.

Well Boys, I don't think you would ever guess what it was. It was so simple I couldn't believe it. "How could I have been so dumb?" What had happened was, when the new cage was installed the bottom gasket; that's the small gasket which forms the seal between the high and low side of the system on Alco valves, was gone. Apparently it had been left off when the new cage was installed. I put on a new gasket, bolted up the expansion valve, and opened up the coil. No frost back appeared and everything was O.K.

I told the Chief Engineer that his plant was all right, but I didn't tell him what I had found. We loaded our gear in the launch and got off the ship just as they were weighing anchor to get underway. What a night! Twenty-four hours of work and worry to find something I should have thought of the first thing. I never told my boss, or anyone else, what the trouble was. To this day he thinks it was the heat exchanger. He still brags about how he got me out of a jam. The Chief Engineer was a "right guy." Sometime later my boss received a letter from his company praising the good job we had done in making it possible for their ship to sail on time.

I don't know why these mental lapses come on a man. I do know that they happen to every serviceman at times, and in many cases they aren't as lucky in finding the trouble at the last minute as I was in this instance. I've been in the game for a long time now. I think I know the business about as well as the next guy, but after an experience such as the one I have just described, I sometimes wonder if I didn't learn the wrong trade. Or did I learn it?

REMOTE WATER COOLERS

For drinking water bubbler service, glass filler service, photographic developing, etc. Compact for floor, wall or ceiling installation. Capacities 6 to 25 gallons.

Also available now—cafeteria glass filler coolers, self-contained type bubbler coolers for offices, stores or factories. Write for latest data.

DAY & NIGHT
REFRIGERATION DIVISION
DAY & NIGHT MFG. CO.
One of the Dresser Industries
MONROVIA, CALIFORNIA
SOLD THROUGH REFRIGERATION WHOLESALERS AND DEALERS

NOW!

FORGED FLARE NUTS AND FITTINGS

Ask your jobber for Details

Electrimatic

2100 INDIANA AVE CHICAGO 16 ILLINOIS

New and Improved Appliances

Information contained in this department is furnished by the manufacturer of the article described and is not to be construed as the opinion of the Editor.

Rotary Broaches

THE Fearless Tool Company, which has recently acquired the manufacturing rights of the Shearcutter Rotary Broach, announces the production of a new type of Shearcutter Rotary Broach.

This new invention introduces a new technique in producing holes in metals. The technique is called "Rotary Broaching" because the tool is, in effect, a broach that rotates as it cuts! The tool is made with high spiral or helical cutting edges, and when end pressure is applied, these helical cutting edges remove metal in a shearing manner. Rotary Broaches, which replace reamers and broaches, produce absolutely accurate holes with a finish that is superior to that produced by ordinary tools or other machining methods.

Rotary broach

Shearcutter Rotary Broaches remove metal by molecular cleavage in a shearcutting, knife-like manner. The chips removed are unlike those produced by other tools for they resemble steel wool in both form and texture.

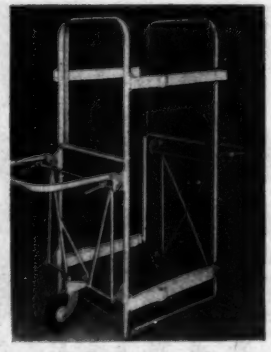
The cutting edge of the Rotary Broach forms a circle, consequently there is no tendency to produce elliptical, bell-mouthed or uneven holes. In short, Rotary Broaches end hole trouble by producing perfectly finished holes.

Savings in production costs are characteristic of this new tool and its principle of operation. These savings are possible because Rotary Broaches are hole-finishing tools which often eliminate the necessity of another operation such as broaching or grinding to produce perfect holes. They have a cutting edge life 5 to 10 times longer than ordinary tools before regrinding is necessary. In addition, Rotary Broaches can be reground 10 to 30 times to produce a newly sharpened cutting edge before the diameter is reduced!

Shearcutter Rotary Broaches are being marketed with straight shanks only, in sizes ¼" to 1" by one-sixteenths and from 1¼" to 1½" by eighths. Larger sizes can be supplied on special order.

Hand Truck

A NEW twin-unit hand truck for handling refrigerators, deep-freeze units, ranges, pianos, etc., is announced by Aircraft Mechanics, Inc., of Colorado Springs, Colorado. Constructed of tubular steel, the truck is equipped with easy rolling aluminum wheels with 6" x 2.50 cushion rubber tires. Swivel wheel on one unit permits access into, and out of, very small spaces. For ease in lifting, long 17½-inch handles are used. Height of truck is 56 inches; width 25½ inches.



Refrigerator truck

Airfoil Fan

PRODUCTION of the Evans Airfoil fan assembly as an individual unit for use in mobile air conditioning, heating, and ventilating systems is announced by A. R. Lintern, manager of the Thermo-Aire division of Evans Products Co., Detroit. Previously the Airfoil fan assembly has been manufactured exclusively as a component part of Evans bus and truck heating and ventilating equipment. The Airfoil fan is an axial flow fan molded from a heat and damage resistant thermosetting plastic. It incorporates a straight wing section in its design in accordance with modern aerodynamic principles.

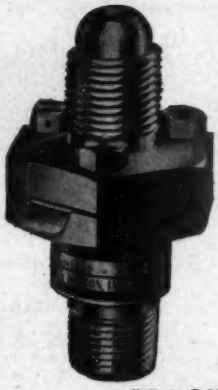
Plastic aerial flow fan

The fan is designed for installations where a large amount of air circulation is needed and where fan installation space and power source are limited. According to Evans engineers, the Airfoil fan uses 20% less current than previous fans to circulate the same amount of air against the same static pressure. Weighing 50% less than previous fans, the Airfoil fan places 50% less load on motor bearings.

Unlike previous fans, weight of the Airfoil fan is concentrated at the hub, creating less inertia for the fan motor to overcome in starting and increasing life of commutators and brushes. Airfoil fans are available in sizes ranging from 2" to 14" in diameter.

According to Lintern, design and performance of this fan make possible its use in a wide variety of air circulating systems, including the cooling, heating and ventilating of motor vehicles, railroad cars and street cars.

Protect Refrigerating Equipment with
"BABY" SAFETY HEADS



The "Baby" was the first SAFETY HEAD produced in large quantities for use on refrigeration and air conditioning systems. Also useful on hot water tanks and small air tanks. Like larger SAFETY HEADS the "Baby" is made with renewable rupture disc of coated aluminum or silver. Body of brass.

CONNECTIONS

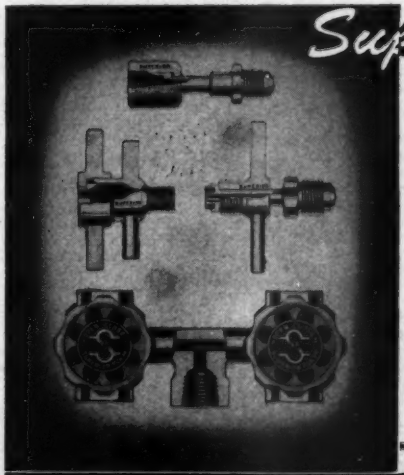
Inlet: 1/4", 3/8", 1/2" male NPT.
Outlet: 3/8" and 1/2" SAE flare; 1/2" male NPT.

Write for Complete Catalog

BLACK, SIVALLS & BRYSON, INC.

SALES OFFICES: 24th Floor Power & Light Bldg., Kansas City 6, Mo.

PLANT: 7500 East 12th Street, Kansas City 3, Mo.



Superior SERVICE TOOLS

GAUGE MANIFOLDS

Neat, compact, convenient—handwheels out in front to save valuable toolbox space. Hex service connections tapped F.P.T., so elbows or straight fittings of your own choice may be installed.

QUICK-COUPLERS

Exactly what the name implies—handy little swivel connectors for "quick-coupling" charging lines, gauge lines, vacuum lines, pressure lines, etc. to refrigeration cylinder valves, gauge sets, compressor service valves, evaporators, condensers and other equipment, *without the use of a wrench.*

Made in three styles—(1) For charging and gauge lines for field or shop service, or factory production equipment; (2) test hook-ups for evaporators, condensers, controls, etc.; (3) for testing equipment where only a tubing connection is provided for attaching.

No. 57

If you haven't a copy of Catalog R2, Request one today

SUPERIOR VALVE & FITTINGS COMPANY
PITTSBURGH 26, PENNSYLVANIA

OFFICES IN PRINCIPAL CITIES • STOCKS CHICAGO 16 • LOS ANGELES 13 • JOBBERS EVERYWHERE

Carbide Drill

THE New England Carbide Tool Company, has announced, in addition to their standard tool line, a carbide tipped Cyclone Drill-Bit. Because carbide is the hardest metal made by man, and is unaffected by extreme heat, it was used extensively during the war to open up many bottlenecks in machines and machine tool production. Now in peace times, it finds its way to use wherever holes are to be drilled in concrete, brick, cement, wall-tile, plastics and general masonry material.

Drilling brick

Cyclone Drill-Bits drill holes from 50% to 75% faster, and outlast ordinary steel drills 50 to 1. They can be used in any standard electric rotary drill. This modern combination is light, easy to handle, and is fast and economical in operation. They drill clean, accurate holes in the shortest possible time.

One user reported that this tool enabled him drill a number of holes in a brick wall in eighty minutes, that by his former method would have taken him eight and one-half hours; about six and one-half times faster than an ordinary drill. Contractors, plumbers, electricians, steamfitters, installation men, maintenance men in industrial plants and even home mechanics are interested in and are using them. They are used in the metal working industry for drilling chilled iron, cast iron, cored holes in aluminum and other types of non-ferrous materials.

Cyclone Drill-Bits are made in stock sizes starting at 5/16" up to and including 1¼" diameter, by 1/16". The consumer market is so broad that this item is non-exclusive and is being stocked by the New England Carbide Tool Company's regular network of distributors, as well as the entire Westinghouse Electric Supply Company's stores throughout the United States, and will soon be available at local hardware, mill supply and other supply houses.

The New England Carbide Tool Company has issued a circular on carbide tipped drills along with instruction sheets and general data. Experiments in field investigation are being carried on to gather other pertinent information which will be available from time to time. For special application such as drilling holes in granite, slate, vitreous tile, the company suggested that samples of material to be drilled, and information about the size and depth of holes, be sent direct to the company offices where they will be turned over to the Research Department and recommendations will be forwarded to the inquirer.

Rubber Lid

THE first cold cabinet lid made entirely of rubber, which is also unbreakable and will not permanently bend according to the manufacturer, is announced by the B. F. Goodrich Company, Akron, Ohio, one of the leading suppliers of rubber products to the refrigeration industry.

The new streamlined lid features a fabric reinforced rubber hinge which requires no lubrication and cannot corrode. Unlike metal hinges, it is solid, and spilled syrups, melted ice cream or other liquids cannot seep into the cabinet.

Because of its simple, non-binding flexing action, the hinge cannot be sprung even by severe abuse. In laboratory tests it has withstood 750,000 flexures under accelerated aging conditions without showing any appreciable change in strength. This test equals five years of normal service life.

The lid is unaffected by moisture, processing solutions, syrups, milk products, or fats. The natural toughness, elasticity, and liquid-proof character of rubber provide it with many advantages over other materials used for closure lids of modern cold cabinets, the manufacturer says.

Pliable at zero temperature Fahrenheit, the new lid will not become tacky in the warmest weather, and will

Low temperature cabinet lid of rubber

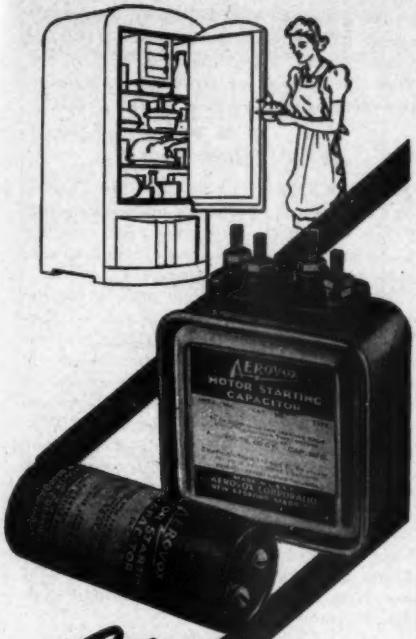
not warp, jam or stick in the cabinet. Its low heat conductivity provides the high insulation properties needed for efficient refrigeration. By maintaining full contacts with throat collars at all points the concave rim insures a positive seal against loss of cold air, keeping cabinet efficiency up by keeping leakage down. There are no separate strips in the concave rim to buckle or pull away, and no danger of frosting at contact surfaces.

B. F. Goodrich also manufactures 50 different types of cold cabinet collars for all kinds and types of modern ice cream or frozen food cabinets, as well as many other rubber parts for refrigeration.

Operations Recording Device

AN OPERATION recording attachment, as an auxiliary rectangular case instruments unit for recording and controlling pressure and temperature in rubber curing, plastic molding, space heating, refrigerating and centrifugal drying, is being introduced by the Brown Instrument Co., Division of Minneapolis Honeywell Regulator Co., Philadelphia.

In refrigerating systems, the length of time and frequency of compressor operations is of interest as a check upon equipment efficiency. Although a record of these operations usually is subordinate in importance to the record of a major process variable, their correlation can be extremely informative.



Millions
now in daily use

• Aerovox motor capacitors are serving as original equipment or as replacements in the majority of electric refrigerators. Ask your local Aerovox supplier about them. Ask for latest Aerovox catalog—or write us.

AEROVOX capacitors

INDUSTRIAL APPLICATIONS

AEROVOX CORP., NEW BEDFORD, MASS., U.S.A.
Export: 13 E. 40th St., New York 16, N.Y. • Cable: 'ARLAB'
In Canada: AEROVOX CANADA LTD., Hamilton, Ont.

Arlington
SHAFT SEALS
3 *Exclusive Features*

FLAT SEAL FACES

— Uniform — flat — smooth — seal faces.

POSITIVE FLEXIBILITY

A diaphragm acting synthetic rubber ring. No sliding fit between a rubber part and shaft or sleeve.

HIGH GRADE MATERIALS

High grade steel and bronze of known wearing quality are used for the seal faces.

Ask your jobber about the
Arlington SHAFT SEAL

MODERN DESIGN PRODUCTS CO.
3944 W. LAKE ST. • CHICAGO 24, ILLINOIS

MODERN DESIGN AGENT

HANS JENSEN, President of Modern Design Products Co., manufacturers of Arlington Shaft Seals, has announced that Al. Wittlin will cover the middlewest territory and east territory for the company.

Mr. Wittlin has had many years experience in refrigeration service and selling replacement shaft seals and will call on jobbers, service companies and servicemen in his territory.

NEW PEERLESS REPRESENTATIVE

M. W. KNIGHT, General Sales Manager, Peerless of America, Inc., announces the appointment of Austin L. Brown as manufacturer's representative in the states of Florida, Georgia, Alabama, Mississippi, Louisiana and Tennesee. Mr. Brown will make his headquarters in Marietta, Ga., which is a suburb of Atlanta.

A. L. BROWN

Mr. Brown is well acquainted with the refrigeration industry having started in business in the refrigeration line in 1936 with the Atlanta Branch of the Fedders Mfg. Co. and in 1939 took over the entire south-eastern territory for Fedders as District Manager. This position he held until 1942 at which time he joined the local office of the York Corporation as Estimating Engineer, remaining with them until March 1, 1946.

NEW "THOR" OFFICE

INDEPENDENT PNEUMATIC TOOL COMPANY, of Chicago, manufacturer of "Thor" portable pneumatic and electric tools, announces the opening of a new branch sales office in St. Paul, Minnesota.

The new "Thor" St. Paul office is located at 220 West Seventh Street, and is managed by Joseph A. Bell, for the past six years sales representative of the company in that area. The new office will serve all of Minnesota, the eastern portions of North and South Dakota, northwest portion of Wisconsin, and the upper peninsula of Michigan.

The new "Thor" office is the seventeenth on the company's international chain. Other offices are located at Birmingham, Boston, Buffalo, Chicago, Detroit, Cleveland, Pittsburgh, Philadelphia, Salt Lake City, St. Louis, San Francisco, Los Angeles, Milwaukee, New York, Toronto, Canada, and London, England.

WESTINGHOUSE REFRIGERATOR PRODUCTION

REFRIGERATOR production at the Westinghouse Appliance Division, Mansfield, Ohio, has surpassed pre-strike levels and is expected to continue to in-

The Western and Pacific Coast wholesalers met June 12, 13 at the St. Francis Hotel, San Francisco for the purpose of forming Western region 9 and 10 of REWA. Wholesalers in attendance and pictured above are left to right: Jack Skotland, G. C. Armour, Merle Stutzman, Al Reinach, Bob Hinshaw, H. A. Halls, Gerald S. Robinson, Harold Stern, B. E. Watters, Lem V. Branson, Ted Glou, H. S. McCloud, Art Tudury, A. W. Sheldon, H. L. Whatcott, C. E. Baker, Wyatt Brown, Hal Clay, G. Van Ginkel, Ted Chamberlin and Jack Tupper.

Says GASKET JOE

COMPRESSORS FIXED
THE SEALS ARE TIGHT,
ANOTHER BOX IS
ALMOST RIGHT.
AND YET, MY FRIENDS,
THERE'S SOMETHING MORE.
BEFORE YOURE SURE
YOUR JOB IS PAT
YOU'VE GOT TO TAKE
A GANDER AT
THE GASKET
ON THE
COOLER
DOOR

JARROW PRODUCTS
420 N. LA SALLE ST., CHICAGO 10, ILLINOIS

4A

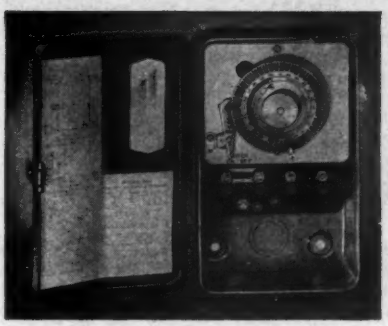
STEP UP POWER WITH THE AUTO-DIESEL Helicam GAPLESS PISTON RING

Blow bys and the power losses they cause are ended when you install AUTO-DIESEL Helicam GAPLESS Piston Rings. Two IDENTICAL interlocking parts form a GAPLESS ring that has the flatness, circularity and close dimensional limits needed to hold high Diesel compression and give maximum performance. Made in sizes from 1" to 36" . . . for original equipment or replacement in Diesel units, and for pneumatic and hydraulic equipment.

Write for Information

THE AUTO-DIESEL PISTON RING CO.
3157 Superior Ave. CLEVELAND 14, OHIO

QUALITY RINGS SINCE 1921



The
"TOP" VALUE
in
Time Switches

Here's a top-quality, service-proved ON and OFF time switch. Precision built rugged and durable with a great performance record. Highly successful for controlling motors, valves, pumps, blowers, oil burners, stokers, attic fans, commercial lights, etc.

A leader when first introduced over ten years ago, now includes many improvements, one of them being telechron motored. Increased volume and war-learned manufacturing efficiency have brought price down to $10.75 list. Write for complete bulletin

Paragon 300 SERIES Now $10.75 List

Telechron MOTORED

PARAGON ELECTRIC COMPANY
1636 Twelfth St. • Two Rivers, Wis.

Paragon Two Rivers WISCONSIN

crease as more steel and component parts become available.

Now in production is the B-7, a seven cubic foot home refrigerator, which is being sent to Westinghouse distributors on a quota basis. The new OPA ceiling price for this model is $187.95. Present plans call for production of a nine cubic foot model by midsummer for which OPA has not yet set a ceiling price.

To meet the present production schedule on refrigerators, as well as for Laundromat washers and electric ranges, plant engineers have installed a conveyor line from the vitreous enameling plant through a partially constructed new building to production aisles in other sections. The new building, part of a $6,500,000 plant expansion plan at the Mansfield Works, will be completed late this summer.

The new conveyor line runs through the open structural steel of a section of the new building that replaces a former conveyor bridge that made up part of the longest industrial conveyor line in American industry, more than 1,000 feet long.

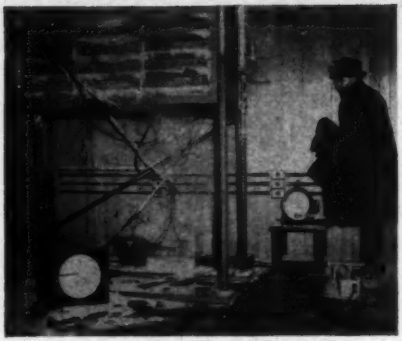
BRADSHAW BURNED OUT

THE W. C. Bradshaw air conditioning and refrigeration sales plant at 420 Broadway, Fresno, Calif., was swept by fire on July 6, causing damage to building, inventory and equipment, of approximately $70,000, covered by insurance.

KRAMER LABORATORY EXPANDED

THE experimental laboratory facilities for the Kramer Trenton Company, Trenton, N. J. have recently been enlarged in order to permit more intensive research in the low temperature field. Among other pieces of new equipment recently installed is the large, low temperature walk-in refrigerator in the illustration. This unit is capable of maintaining temperatures below minus 40 degrees F. over a wide range of humidities subject to close control. This box permits the testing of large capacity units under the most severe conditions. It is equipped with modern instruments for indicating and recording temperatures, humidities, refrigerant flow and current consumption.

The Kramer Laboratory Staff is now engaged in the study of refrigeration equipment operation with F.22 at extremely low temperatures. Studies recently completed in the laboratory made possible the computation of rapid selection tables, giving 1440 calculations for heat loads and evaporator sizes covering a wide range of freezing and storing operations through temperatures ranging from plus 10 degrees to minus 20 degrees. These tables will soon be made available to the industry.



Zero testing in Kramer laboratory

NEW MANAGER FOR DAY & NIGHT

THE Day & Night Manufacturing Company of Monrovia, California, has just announced the appointment of J. W. Rubenson as manager of their Refrigeration Division.

J. W. RUBENSON

For fifteen years, Mr. Rubenson was one of the leading distributors in the Hawaiian Islands of refrigerating and air conditioning equipment. During the war, he handled many important refrigeration and air conditioning installations in that area and also conducted a special school to quickly train Army and Navy personnel in the emergency repair and maintenance of this equipment.

Prior to his association with Day & Night, Mr. Rubenson served as Field Engineer for Chrysler Airtemp in the Western Division. He has been a member of the A.S.R.E. since 1934, and his wide experience in both the domestic and export business will be fully utilized in carrying out plans for developing and expanding the distribution of Day & Night Refrigeration products.

LEAKS?

Find them with

VISOLEAK

VISOLEAK detects even the smallest leaks before they cause damage to expensive refrigeration systems. Years of use prove it safe, economical, easy to use.

NEW CHARGING SET

The **VISOLEAK** Charging Set was developed to inject **VISOLEAK**, add refrigerant oil, or recharge sealed units. For use on all types of refrigeration systems without danger of introducing air or foreign matter.

Charging Set—complete with hoses . $7.50
Filler only—without hoses 6.00

WHOLESALE PRICES		CASE LOTS
4 ounce bottle:	$ 1.00	48 bottles
8 ounce bottle.	1.75	24 bottles
1 pint bottle...	3.00	24 bottles
1 quart bottle.	5.00	12 bottles
1 gallon can...	16.00	6 cans

SAVE 10% ON CASE LOTS

See your refrigeration supply jobber or write for complete information.

WESTERN THERMAL EQUIPMENT COMPANY

1701 West Shawen Avenue Los Angeles 44, Calif.

SERVICE MEN: Send us your Thermostatic and Automatic EXPANSION VALVES for ***REPAIR OR EXCHANGE***

Our Work Is Guaranteed
Prices will be mailed promptly upon request.

CIRCLE VALVE REPAIR
327 So. La Salle St., Room 348
Chicago 4, Illinois

IF you can do it!

Out of his hat, you see the magician pulling a trained, experienced refrigeration man. Simple, isn't it? Or is it? For, unfortunately, there's NO magic formula for supplying refrigeration men. And the time is coming when you may wish there were!

One of these postwar days, there may be more men than jobs—and the work will go to the best qualified to handle it! That's why it's important today to prepare for tomorrow.

U.E.I. BALANCED TRAINING

U.E.I. (now in its 20th year) has a *balanced* training program designed for old-timers to brush up and young-timers to train in refrigeration. It's the kind of program that provides a *balanced* background of technical knowledge through home-study training *and* actual shop practice—A program that can help you—and maybe the fellows working for you—prepare to make the most of refrigeration and air conditioning tomorrow. And it's sound, interesting training, not quick magic! For there's no sleight-of-hand in U.E.I.'s program—it's been tried and proved by seasoned men, by leading manufacturers in the field, as well as the "youngsters"!

Mail this coupon today! You'll get free FACTS about U.E.I.'s *proved* program.

UTILITIES *Engineering Institute*
Dept. 45, 1314 W. Belden Ave., Chicago 14, Ill.

Please give me more information about Refrigeration and Air Conditioning Training.

Name .....

Address .....

City..... State.....

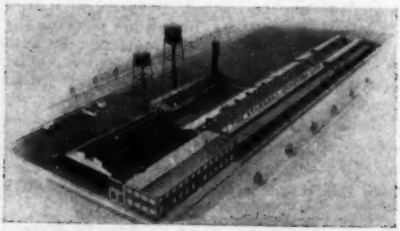
HENRY VALVE ELECTS V.P.

HENRY VALVE CO., Chicago, has announced the election of D. K. McIlvaine to the post of Vice President of the company. He has been associated with the company since September, 1945, and will have charge of engineering and manufacturing.

D. K. McILVAINE

Mr. McIlvaine is a graduate of Washington - Jefferson College and received post-graduate training in electrical engineering at Carnegie Institute of Technology. His business activities have included the manufacture of radio receiving sets and a 20-year tenure in charge of the meter department and laboratory of a large electric utility. At the beginning of the war he joined the Bell Telephone Laboratories and Western Electric Co., specializing in the development and manufacture of radar components. After the completion of this program, Mr. McIlvaine entered the field of refrigeration.

He is a member of the American Society of Refrigeration Engineers and the American Society of Electrical Engineers and an associate member of the Institute of Radio Engineers.



The Stangard-Dickerson Corporation of Newark, N. J., manufacturers of Cold Plates, ice cream and low temperature cabinets, has increased its manufacturing facilities according to Victor J. Moss, Director of Sales. Besides the present plant in Newark, with a floor space of 125,000 sq. ft., a new plant has been acquired in Paterson which gives 150,000 sq. ft. additional capacity and offers extra acreage for expansion. The new Paterson plant was necessitated to expedite handling of the backlog of orders on hand.

LIQUID CARBONIC APPOINTMENT

GEORGE T. JAHNKE has been appointed Director of Advertising of The Liquid Carbonic Corporation, P. F. Lavedan, president, announced.

G. T. JAHNKE

Mr. Jahnke was in charge of Liquid's advertising from 1919 until shortly after the outbreak of World War II. Then he organized a division to expedite materials and parts for war contracts and headed that department for more than three years. In March of 1944 he resumed his advertising duties.

In his new position, Mr. Jahnke will have responsibility for and control of all customer and public relations for the entire Corporation.

The Liquid Carbonic Corporation manufactures carbonic gas, bottlers' and brewers' machinery, soda fountains, ice-cream cabinets, bottlers' extracts, commercial and medical gases, medical gas equipment, gas welding and cutting apparatus and supplies.

The company operates 40 branches and salesrooms in the United States. It has subsidiaries on the Pacific Coast, in Canada, Central and South America, and Great Britain.

MATHIESON APPOINTMENTS

APPOINTMENTS to four newly created sales posts and rearrangement of one New England and two Southern sales areas have been announced by D. W. Drummond, General Sales Manager of The Mathieson Alkali Works.

Harold R. Dinges has been named District Sales Manager of one of the new southern sales areas and will direct its activities from headquarters at Charlotte, N. C. A member of the company's Sales Development Department until his present appointment, Mr. Dinges joined Mathieson in 1941. He will supervise company sales activities in Virginia, North and South Carolina and parts of West Virginia and Tennessee.

O. J. Theobald, Jr., a member of the Mathieson organization since 1932 as sales representative, has been named to assist Mr. Dinges.

HENRY VALVE CO.

CONTROLLING FLOW SINCE 1914

VALVES • DRIERS STRAINERS

For Refrigeration and Air Conditioning
Sold by Leading Jobbers in 130 Cities

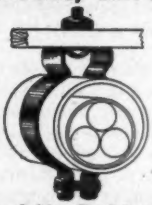
HENRY VALVE CO.

3260 W. Grand Ave. Chicago 51, Ill.

MINERALLAC

Steel HANGERS, CLIPS, STRAPS

OUTSERVE! *OUTLAST!*



Minerallac Cable, Conduit and Messenger Hangers are STEEL. Easier, quicker to install; permit speedy, compact wiring; economical. Also in Everdur . . . Porcelain Insulating Bushings available.

Jiffy STEEL Clips (Pipe-clamp) require only one screw, nail or bolt; rib-strengthened; for hanging pipe, conduit, BX cable, mounting coils, etc. Millions in use.

Steel Straps for Messenger-cable services on outlet boxes; may be used in conjunction with hangers.

Order from your Electrical Wholesaler. Send for literature.

MINERALLAC ELECTRIC COMPANY

25 North Peoria Street Chicago 7, Illinois

ARID-AIR BOTTLE COOLER

FOR HOTELS-TAVERNS-DRUG STORES, ETC.

Yes, we're making deliveries NOW . . . on the new ARID-AIR Bottle Cooler, with years-ahead features — sliding, disappearing stainless doors, adjustable removable partitions, roomy 504-bottle capacity, forced air circulation that cools top bottles first. Fully guaranteed.

WRITE TODAY — for complete details, prices, and service — Sales Dealer Plan.

★

AMERICAN REFRIGERATOR and MACHINE, INC.

2700 UNIVERSITY AVE., N. E.

MINNEAPOLIS 13, MINNESOTA

FOR SALE—10,000
NEW ALUMINUM ICE CUBE TRAYS IN 3 POPULAR SIZES

Also air-cooled and water-cooled remanufactured condensing units in sizes from ¼ to 2 H.P.

Write for Particulars

EDISON COOLING CORP.
310 E. 149th St. New York 51, N. Y.

AIR CONDITIONING and REFRIGERATION

AIRO SERVICE

PARTS
TOOLS
SUPPLIES
and
SHOP EQUIPMENT

FAST — EFFICIENT
NATION-WIDE
MAIL ORDER
SERVICE

Wholesale Only

AIRO SUPPLY COMPANY
Dept. A, 2732 N. Ashland Ave.
Chicago 14, Ill.

H. R. DINGES O. J. THEOBALD
F. O. TILSON W. H. EASTBURN

Fred O. Tilson, District Sales Manager of the second newly defined southern area which will be serviced from Chattanooga, Tenn., will supervise company sales activities in parts of Tennessee, Alabama and Georgia. Prior to his new appointment, Mr. Tilson has represented Mathieson in varied sales capacities since joining the company in March, 1925.

William H. Eastburn heads the newly defined New England sales area as District Sales Manager and will direct sales activities from headquarters at Providence, R. I. He has been a member of Mathieson's sales staff since 1932. Mr. Eastburn has also played a prominent part on numerous committees supervising water and sewage problems for his native state of Pennsylvania.

MILK, WATER COOLER PRODUCTION

ELECTRICALLY-OPERATED coolers needed by dairy farmers to protect the nation's milk supplies are rolling off assembly lines in Springfield, Mass., in a volume four times as great as the pre-war production rate, and average weekly output of drinking water coolers has doubled compared with pre-war figures, according to H. F. Hildreth, manager of the refrigeration spe-

CERTAINTY vs. LUCK in EMERGENCY REPAIRS

You cannot gamble with your customer's equipment. Whether it is an emergency job or special installation, Airco has the parts for you.

Add to your profits by using products that are internationally known for their reliability.

Order from Airco by 'phone, mail or wire. We ship your order the same day it is received.

Airco Refrigeration PARTS
1374 NOTRE DAME W., MONTREAL

CONTROLS—VALVES
REPAIRED OR EXCHANGED

We completely disassemble controls, clean, test, check and replace defective or broken parts, and set for proper temperatures.

Domestic Cold Controls (Modern).....$2.50
Commercial Controls (Pres. or Temp.).... 2.75
Automatic Water Valves..... 3.00
Until further notice, do not send in Automatic or Thermostatic expansion valves for repair.
90 day guarantee ★ Prices F.O.B. Chicago

Refrigeration Control Service
4840 S. Springfield Ave., Chicago 32, Ill.

GASKETS

GASKETS

Write for complete catalog.

• Play safe and specify CHICAGO-WILCOX gaskets for every refrigeration need. Our complete gasket service provides a dependable source of supply to meet your requirements. Get full details today.

CHICAGO-WILCOX MFG. CO.
7701 Avalon Ave. Chicago 19, Illinois

SERVICING THE *Meter-Miser*
IS PROFITABLE BUSINESS WHEN YOU CAN HANDLE IT

Every well equipped service shop will find it can make extra profits by being able to service Meter-Misers. Plan on getting this business for your own shop this year. Meter-Miser users added to your list of customers will add profits and build good will in your community.

HERVEEN

the IDEAL REPLACEMENT GAS

Six years proven service

In April 1939 we formally announced this refrigerant. Since that time many thousands of Meter-Misers have been operating satisfactorily with HERVEEN. More and more service men are finding it meets their requirements and is making friends among Meter-Miser owners.

Order your supply to-day and be prepared. See your jobber or write direct to

Modern Gas Co., Inc.
Manufacturers & Refiners
1084 BEDFORD AVE.
Brooklyn 5, New York

cialties department of the Westinghouse Electric Appliance Division.

Milk coolers for dairy farms are built in four cabinet sizes that can handle three, four, five or six standard 10-gallon milk cans. Thirty-five to 40 gallons of water, chilled by a hermetically sealed refrigeration unit, are circulated each minute around the outside of the cans, keeping them at a uniform, low temperature. The cooling equipment is built as a single unit so it can be easily replaced during a servicing operation. Cooling units, called "drop-in" coolers are sold separately to farmers who already own cabinets with adequate insulation.

Water coolers were built during the war almost exclusively for use aboard Navy and merchant marine ships, in Army cantonments and for industrial plants producing military goods. They now are being supplied at an accelerated rate to normal peacetime customers, such as offices, hospitals, theaters and restaurants.

TEMPRITE APPOINTMENTS

TEMPRITE Products Corporation announces the appointment of H. B. Weeks as New England Sales Representative, and Austin L. Brown as Southeastern state Sales Representative.

Mr. Weeks' experience extends over a period of 15 years in the Refrigeration Industry, as appliance sales promotional man, wholesale jobber representative and manufacturer's agent. Mr. Weeks' territory will be all of New England with headquarters at 156 Pearl Street, Boston.

Mr. Brown has been active in the Refrigeration Industry for over 10 years, first with Fedders as Southeastern District Manager, later with York as branch estimating engineer and at present as Manufacturer's Representative in the states of North and South Carolina, Georgia, Florida, Alabama and the eastern part of Tennessee. Mr. Brown's headquarters will be 507 Kennesaw Ave., Marietta, Georgia.

WRIGHT TO REPRESENT NARC

E. S. WRIGHT of Youngstown, Ohio, one of the organizers of the National Association of Refrigeration Contractors, (NARC), and its present Recording Secretary, has agreed to give a portion of his time as representative of the association in the field.

Mr. Wright's services will be available for

Controls Repaired & Rebuilt

Just Mail in Controls—We Handle the Rest

COMMERCIAL — DOMESTIC — INDUSTRIAL

One Year Guarantee

Each Control Reset and Cycle Tested

Domestic Cold Controls (Modern Type)	$2.00
Commercial Controls (Pres. or Temp.)	2.50
Commercial Dual Controls	3.00
Automatic Water Valves	2.00
Automatic Expansion Valves	1.75
Thermostatic Expansion Valves	3.00

All Prices F.O.B. Chicago and subject to change without notice

ACME CONTROL SERVICE

5525 Lawrence Avenue—Chicago 30, Illinois
Phone PENsacola 3303

To Locate or Sell

Used Equipment

USE a classified ad

Quick Results • Low Cost

Refrigeration Units, Parts and Supplies

26,000 square feet of Shop and Warehouse Space

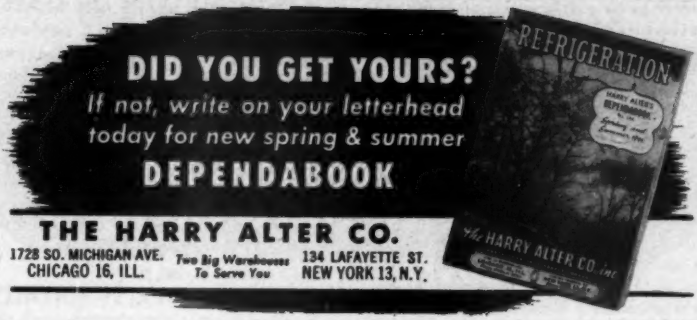
Same Day Service On Items In Stock

1946 CATALOG CANCELLED

Price increases and other conditions beyond our control make it impossible to issue a complete and up-to-date catalog. Therefore, we will not publish a catalog in 1946.

SERVICE PARTS COMPANY

2511 Lake Street **Melrose Park, Ill.**


DID YOU GET YOURS?
If not, write on your letterhead
today for new spring & summer
DEPENDABOOK
REFRIGERATION
THE HARRY ALTER CO.
1728 SO. MICHIGAN AVE. CHICAGO 16, ILL.
Two Big Warehouses To Serve You
134 LAFAYETTE ST. NEW YORK 13, N.Y.

10 DAY SERVICE

Factory Rebuilt Units $39.95
(ALL MODELS EXCEPT "C")

- Genuine Grunow Parts.
- Guaranteed 6 months.
- Just unfasten bolts holding board and ship complete.

GRUNOW
AUTHORIZED SERVICE, INC.
4313 W. Fullerton Ave., Chicago 39, Ill.

Offers (1) Complete inventory record. (2) Part numbers always visible. (3) Easily stored in bins or on shelves.

Write for illustrated catalog and price list.

HASCO, INC.
GREENSBORO, N. C.

THE ✓ "CHECK OFF" TELLS THE STORY

"JUSTA" DEHYDRATOR		RAPID DEHYDRATORS
?	STURDY, NON-COLLAPSIBLE SHELL	✓
?	REMOVABLE INLET AND OUTLET SCREENS	✓
?	REFILLABLE—EASILY CLEANED	✓
?	LARGE HEX ADAPTORS ON EACH END	✓
?	SUPPLIED IN SIX UNIFORM CAPACITIES	✓

FINE PRODUCTS COMPANY
711 W. LAKE ST. ★ CHICAGO 6, ILL.

local meetings or conferences of refrigeration contractors in the central, south-central and eastern states.

Mr. Wright got his start in the refrigeration industry by selling refrigerators and worked his way up to the position of sales manager of a large distributor.

Realizing the need for a thorough practical knowledge, he took the Frigidaire, G. E. and York training courses, and did all kinds of work with the tools.

He finally decided to go into business for himself, so organized a refrigeration service business in Youngstown, featuring a contract service under a bonded guarantee. This business specialized in commercial and industrial refrigeration and air conditioning sales, installation, and service.

At present, Mr. Wright is president of Refrigeration Contracts, Inc., and vice-president of Zero Locker Company, with plants in Youngstown and Warren, Ohio. He also acts as consultant on special sales application and engineering work for other refrigeration contractors.

He has been active in A.S.R.E. and R.S.E.S., as well as N.A.R.C. He is a past president of the Youngstown Chapter of R.S.E.S.; also a member of the Frozen Food Locker Association.

NEW BULLETIN ON SEALS

CHICAGO Seal Company announces the publication of their new bulletin 646. This 8-page bulletin gives detailed specifications, illustrations, and list prices of their line of seals and valve plates. In addition to the many seals and valve plates that were shown in former bulletins, this new publication lists 41 new applications of Chicago Seal Company products. A copy may be secured by writing Chicago Seal Company, 20 North Wacker Drive, Chicago, Illinois.

NEW HENRY VALVE CATALOGS

HENRY VALVE CO., Chicago, has recently published two new catalogs illustrating and describing the Company's line of ammonia valves and steel fittings.

Catalog 65 contains detailed data, prices, and dimensions of Henry ammonia shut-off, hand expansion, purge, relief, and check valves, packed liquid gauge sets, and accessories for ammonia refrigeration and other industrial purposes. Catalog 67 describes Henry drop forged and cold rolled steel fittings.

This literature may be obtained by writing to Henry Valve Co., 3260 W. Grand Ave., Chicago 51, Ill.

TINIT
17 YEARS ON MARKET

THE SEAL OF GOOD SOLDERING
TINIT
CLEANS AND TINS METAL IN ONE OPERATION
TO SOLDER ... TIN-IT FIRST

Registered U.S.A.—Canada
Factory—1635-39 PLATTE ST.

SOLDERING COMPOUND
Cleans and tins in one operation

Penetrates rust, paint and grease—cleans and tins by simply applying heat.
Sold through Automotive, Refrigeration Supply and Hardware Jobbers, etc.

USED BY ARMY AND NAVY

TINIT MFG. CO.
BOX 794 DENVER, COLORADO

SECTION OF COMMERCIAL TRADES' SHOP

TRAIN WHERE THE ARMY TRAINED

Learn Domestic and Commercial Refrigeration and Air Conditioning Maintenance & Service

Full or part time Residence course or Combination Home Study & Shop training.

VETERANS - Commercial Trades Institute is approved for GI training

Write for free Descriptive booklet

COMMERCIAL TRADES INSTITUTE
1400 Greenleaf Ave. CHICAGO 26, ILLINOIS

LEADERS FOR 50 YEARS PAST

JAMISON-

BUILT COLD STORAGE DOORS

HAGERSTOWN, MARYLAND

BRANCHES IN PRINCIPAL C'TIES

PARTS & TOOLS

For Refrigeration Servicemen

Parts and tools you need now may be available from our ever increasing stock. We offer our assistance to you in getting what you need.

Our business is to serve you in your business

H. W. BLYTHE COMPANY

2334 So. Michigan Ave. Chicago 16, Ill.

COLDSPOT REPAIR SERVICE

COMPLETE UNIT OR COMPRESSOR

OPEN TYPE ONLY

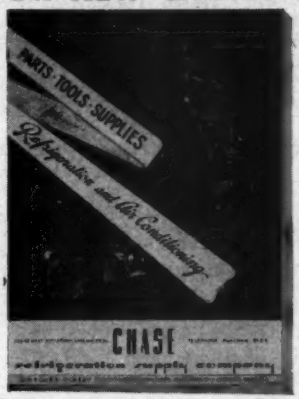
Work Guaranteed

Write for Price

SUPREME MFG. COMPANY

3006 N. Franklin Ave.
FLINT 6, MICHIGAN

OUR *NEW* CATALOG!



Send for your copy of this Big, New Catalog of Refrigeration and Air Conditioning supplies. Just off the press! Reserved exclusively for the Wholesale Trade. Include proper identification with your request.

CHASE

REFRIGERATION SUPPLY CO.

546 W. 119th St. ★ Chicago 28, Ill.

BARGAINS?? IN THESE TIMES!

THAT'S RIGHT . . . Due to Government cancellation of War Orders we have over 3000 Socket Wrench Sets—2700 Flaring Tools—1500 Tool Chests—2000 Compound Gauges—2000 Pressure Gauges—6 Tons Silica Gel and many other refrigeration items at money saving prices.

IMMEDIATE DELIVERY ● ***QUALITY GUARANTEED***

FRED C. KRAMER COMPANY

212 N. JEFFERSON STREET CHICAGO 6, ILLINOIS

NEW! NEW!

HOW TO MAKE REALLY TIGHT FLARE JOINTS
SEND FOR YOUR COPY OF "FLAREKOPS"
GET THE REAL INFORMATION
GOODBY TO LEAKS

FLOW CONTROLS, INC.
1821 W. North Avenue — Chicago 22, Illinois

ARE YOU

Equipping a new Serviceman

Equipping a new Truck

Going back into Service Work

?

We have prepared a very helpful list of items suggested as a minimum stock. Several lists are available. Check the ones you want.

- ☐ Service Tools
- ☐ Parts for Domestic Service
- ☐ Parts for Commercial Service

Use your letterhead and send your inquiry to Dept. A.

THERMAL COMPANY INC.

St. Paul, 4, Minn. 2410 University Ave.
Milwaukee, 3, Wisc. 749 No. Seventh St.
Des Moines, 9, Iowa 106 Eleventh St.
Cedar Rapids, Iowa 503 Fourth Ave. S.E.
Great Falls, Mont. 306 First Ave. South

REPAIR SERVICE

One year guarantee
Cold Controls • Pressure Switches
Expansion Valves
Look and Work Like New Controls
Original Factory Specifications

UTILITY THERMOSTAT CO.
4011 Halldale Ave — Los Angeles 37, Calif.

SILVER SOLDER KITS

For refrigerator Contractors and All SERVICE MEN — $2.00 Per Kit

KIT INCLUDES: One 3-oz. Tube XCEL-FLUX "SS" Silver Solder Paste. Twenty 5-in. lengths (Total 100 in.) SILFOS and EASY-FLO Silver Brazing Alloy—1/16", 5/64", 1/32" wires and one EASY-FLO .005"x1" strip.

XCEL-FLUX "SS" paste for silver soldering also supplied in 8 oz. jars—70c per jar; 1 lb. jars at $1.30 per jar.

Jobbers discounts on request
Electrotypes available to Jobbers for cataloging.

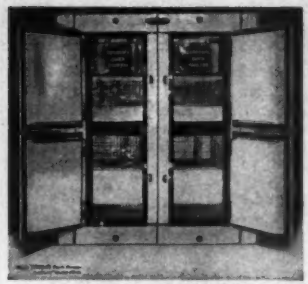
AMERICAN PRODUCTS CORP., 821 Lowell Bldg., Chicago 5, Ill.

STANGARD

Prime Surface **COLD PLATES**

For Maximum Refrigerating Efficiency

THE STANGARD DICKERSON CORP.
46-76 Oliver Street · Newark 5, N. J.



Wilson ZEROSAFE

Wilson ZEROSAFE Is Years Ahead

SINCE 1939 Enthusiastic public acceptance and constant daily use have proved Wilson ZEROSAFE the greatest Reach-In Farm Freezer in America. These years of trouble-free ZEROSAFE service are your guarantee that the new ZEROSAFE, now greater than ever before, will continue to revolutionize American eating habits by making frozen fresh foods a part of daily living.

There is a ZEROSAFE size for EVERY need. Self-Contained Models are of 15 and 25 cu. ft. capacities; Sectional Models, from 22 cu. ft. to 120 cu. ft. Model illustrated is FF-44.

For franchise information address Desk 15

WILSON REFRIGERATION, INC.
SMYRNA DELAWARE

COMPRESSOR REPLACEMENT SERVICE

Immediate delivery on a replacement schedule for over 125 compressors. Shipment of a replacement compressor can be made the same day yours is received. Most standard models available for this service.

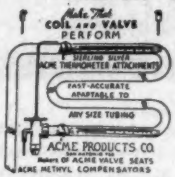
90 day guarantee—Reasonable prices.

We do not repair hermetic units.

For quotations, 'phone ALBany 1703 or Write

KEYSTONE ENGINEERING CORP.
4140 Chicago Ave. Chicago 51, Ill.

Service Men: DON'T GUESS—
KNOW YOUR COIL TEMPERATURE
Acme Attachments are Fast—Accurate—Dependable


Make That COIL AND VALVE PERFORM
DIRECTION RATE ACME THERMOMETER ATTACHMENTS
FAST-ACCURATE ADAPTABLE TO
ANY SIZE TUBING
ACME PRODUCTS CO.
Makers OF ACME VALVE SEATS
ACME METHYL COMPENSATORS

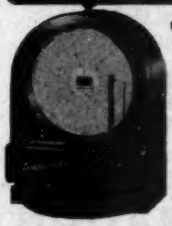
See or Write

Thermal Company, Inc., St. Paul

Roehe & Hull, Inc. Baltimore

Refrigeration Parts Co. Milwaukee

For *TEMPERATURE / For *MOTOR OPERATION — *2 Recorders* For Less Than The Price of One*



The TEMPSCRIBE Recorder is outstanding for its universality. Any TEMPSCRIBE can be quickly converted from temperature recording to time-operation recording simply by changing the door of the instrument. One clock case (having a 24-hour spring-wound movement) and two doors (one with a bi-metalic temperature element, and one with mechanism for recording motor on-and-off time) give you all the advantages of two separate instruments, yet cost less than you would normally expect to pay for a single instrument that makes dual records!

TEMPSCRIBE charts are clear, distinct, and separate, yet can be quickly correlated by placing one over the other. Because pen and actuating element are in the door, chart can be replaced without danger of damaging pen or accidentally marking chart.

Popular TEMPSCRIBE styles: Temperature Ranges—minus 10° to plus 50° F. for cabinet temperature, and 40° to 100° F. for room temperature; and Motor Operation mechanism for series connection up to 250 volts. Other styles are listed in Leaflet 712.

Ask Your Wholesaler

Bacharach INDUSTRIAL INSTRUMENT CO.
7000 BENNETT STREET, PITTSBURGH 8, PA.

THE ANSWER TO YOUR HELP PROBLEM

We have available "REFRIGERATION SERVICE MEN" trained in our school shops and laboratories. Resident Students only. These men have a sound technical and practical knowledge of refrigeration and Air Conditioning.

Approved for **G. I.** training

Write us when you need skilled help

BOSTON TECHNICAL INSTITUTE, SCHOOL OF REFRIGERATION
4707 Euclid Ave. Cleveland 3, Ohio

THIS IS IT! JUST OFF THE PRESS

WRITE FOR YOUR COPY NOW

Reserved for the wholesale trade only. Business identification is required before your copy will be mailed.

Designed for use by the Refrigeration trade, this plastic bound catalog contains the latest list prices at publication time. Here is the latest in new items added to our already great variety of parts, tools & supplies.

Automatic
HEATING & COOLING SUPPLY
(Division of Weil-McLain Company)

647 W. Lake St.
909 W. 74th St.

CHICAGO 6, ILLINOIS

READY NOW

Our 1946 Catalog of refrigeration supplies and parts

For Immediate Delivery on All Items

Write for your copy today.

G. & E. EQUIPMENT SUPPLY CO.
400 N. Sangamon St.
Chicago 22 Illinois

COLD CONTROLS & EXPANSION VALVES
repaired or exchanged
at the following prices, F.O.B. Chicago

Automatic Expansion Valves (All Makes)	$1.75
Thermostatic Expansion Valves	2.00
Automatic Water Valves	1.00
Domestic Cold Controls (Modern Type)	2.75
Commercial Controls (Temp. or Pressure)	2.75
Commercial Dual Controls	3.50

ALL WORK GUARANTEED FOR 90 DAYS

NEW DUTY
2424 Irving Park Blvd., CHICAGO 18, ILL.

REFRIGERATION

SERVICE MANUAL. Covers all domestic and commercial systems. Construction, operation, installation, adjustment, testing, trouble shooting, replacement, repair, etc. Also refrigeration applied to air conditioning. 300 pages, fully illustrated, understandably written. Only $2.25 postpaid (if C.O.D. plus postage fee). Money back guarantee.

* * * * *

We specialize in all books on Refrigeration, Air Conditioning, Heating, Ventilating, Plumbing, etc.

Join our new TECHNICAL BOOK CLUB—free. Members receive current literature, guidance on all book problems, premiums. No obligation. All technical books. Write for FREE literature, specify subjects.

MODERN TECHNICAL BOOK CO.,
Dept. R.S., 55 West 42nd St.,
New York 18, N. Y.

Please send me.....copies REFRIGERATION SERVICE MANUAL. Enclosed find $..... ☐ check ☐ money order ☐ cash. Please send ☐ C.O.D. (plus postage).

NAME .....

ADDRESS .....

CITY..... ZONE.... STATE.....

Here's Good News!

"SHIPMENTS NOW"

SHANK DEHYDRATORS

Best construction, light weight, 1" & 2" seamless tubing. Silver brazed ends —Leak proof. Felt pad filter right size and texture for clean flow of refrigerant. Furnished complete, filled with either Calcium Chloride, Activated Alumina or Silica Gel.

LOW COST

You'll find it less costly to replace with new Shank Dehydrators than to refill.

Keep a stock ready for immediate use.

Don't delay—write today for specifications and prices.

CYRUS SHANK COMPANY
625 W. Jackson Blvd., Chicago 6, Ill.

Identifies a discriminating customer—one who is satisfied with only the best. Give him better service by using only genuine Servel parts. See your local Servel distributor or authorized parts jobber.

Electric Refrigeration Division **SERVEL, Inc.** Evansville 20, Indiana

In the West It's

REFRIGERATION SERVICE INC.

Pacific Coast Supply Jobber Since 1928

Your letterhead will bring our latest catalog—also our House Organ,

"The Liquid Line"

RS

3109 Beverly Blvd.
LOS ANGELES 4, CALIF.

CONTROL REPAIR SERVICE

Power elements and domestic controls reconditioned equal to new at a small cost. All work guaranteed for one year. Prices upon request.

United Speedometer Repair Co.
342 W. 70th Street
New York City 23

BESTOLIFE
LEAD SEAL JOINT SEALING AND ANTI-SEIZE PIPE JOINT COMPOUND

'BESTOLIFE has been used successfully in the Refrigeration Industry for years.

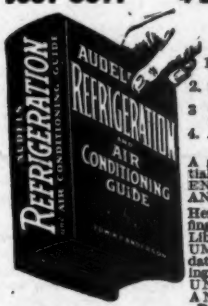
'BESTOLIFE is non-corrosive and non-expanding. It takes the place of litharge and glycerine. Does not harden or dry out. Protects threads, keeps pipe joints tight yet easily broken apart.

Prove 'BESTOLIFE'S efficiency for yourself. Trial 1¼ pound can sent anywhere in the U. S. for $1.00. This charge cancelled if not entirely satisfactory.

Manufactured Exclusively By

I. H. GRANCELL
1601 E. Nadeau St., Los Angeles 1, Calif.

JUST OUT! ***4 Books in One!***



Covering:
Basic Principles, Servicing, Operation, Repair of
1. Household Refrigeration
2. Special Refrigeration Units
3 Commercial & Industrial Refrigeration
4. Air Conditioning Systems

A gold mine of essential important facts for ENGINEERS, USERS AND SERVICEMEN.

Here you have at your fingers' ends a Complete Library in ONE VOLUME, the necessary data you have been looking for on: MODERN UNITS, SYSTEMS AND MACHINES, REFRIGERANTS, Including Freon, Quick Freezing, Lockers, Water Coolers & Air Conditioning Systems.

ANSWERS YOUR QUESTIONS.

$4 1280 Pages, 46 Chapters all Fully Illustrated & Indexed for Ready Reference
COMPLETE • PAY ONLY $1 A MONTH

Get This Information for Yourself. Mail Coupon Today. No Obligation Unless Satisfied. ASK TO SEE IT.

AUDEL, Publishers, 49 W. 23 St., N. Y. 10
MAIL AUDELS NEW REFRIGERATION GUIDE for free examination. If O.K. I will send you $1 in 7 days; then remit $1 monthly until price of $4 is paid. Otherwise I will return it.

Name ----------
Address ----------
Occupation ----------
Employed by ---------- R11

Index to Advertisers

Acme Control Service 88
Acme Products Co. 93
Aerovox Corp. 79
Airco Refrigeration Parts 87
Airo Supply Co. 86
Alco Valve Co. 19
Alter Co., The Harry 89
American Products Corp. 92
American Refrigerator & Machine Co. 85
Ansul Chemical Co. 1
Audel, Publishers 95
Auto-Diesel Piston Ring Co., The 81
Automatic Heating & Cooling Supply Co. 94
Automatic Products Co. ..... 48 and 49

Bacharach Industrial Instrument Co. 93
Betz Corp. 61
Black, Sivalls & Bryson, Inc. 77
Blythe Co., H. W. 91
Bonney Forge & Tool Works ..... Back Cover
Boston Technical Institute 93
Brunner Mfg. Co. 12

Chase Refrigeration Supply Co. 91
Chicago Seal Co. ..... Inside Front Cover
Chicago-Wilcox Manufacturing Co. 87
Circle Valve Repair 83
Commercial Trades Institute 90
Cutler Hammer, Inc. 16

Davison Chemical Corp. ..... Inside Back Cover
Day & Night Mfg. Co. (Refrigeration Div.) 75
Detroit Lubricator Co. ..... 2 and 3

Edison Cooling Corp. 86
Electrimatic 75

Fine Products Co. 89
Flow Controls, Inc. 92

G & E Equipment Supply Co. 94
General Controls 51
Grancell, I. H. 95
Grunow Authorized Service, Inc. 89

Hasco, Inc. 89
Henry Valve Co. 85
Highside Chemicals Co. 8

Imperial Brass Mfg. Co. 7

J-B-T Instruments, Inc. 14
Jamison Cold Storage Door Co. 91
Jarrow Products 81

Kelvinator (Div. of Nash-Kelvinator Corp.) 55
Kerotest Manufacturing Co. 15
Keystone Engineering Corp. 93
Kinetic Chemicals, Inc. 13
Kings County Refrigeration Co. 73
Kold-Hold Manufacturing Co. 18
Kramer Co., Fred C. 91
Kramer-Trenton Co. 71

Logan Engineering Co. 24
Lynch Mfg. Corp. 11

Mills Industries, Inc. 65
Minerallac Electric Co. 85
Minneapolis-Honeywell Regulator Co. 22
Modern Design Products Co. 79
Modern Gas Co., Inc. 87
Modern Technical Book Co. 94
Mueller Brass Co. ..... 4 and 5

New Duty 94

Paragon Electric Co. 81
Peerless of America, Inc. 9

Ranco, Inc. 20
Refrigeration Control Service 87
Refrigeration Service, Inc. 95
Rempe Co. 73
Robinson, R. 67

Sanitary Refrigerator Co. 71
Servel, Inc. 95
Service Parts Co. 88
Shank Co., Cyrus 94
Skasol Corp. 59
Standard Refrigeration Co. 53
Stangard Dickerson Corp. 92
Superior Valve & Fittings Co. 77
Supreme Mfg. Co. 91

Temprite Products Corp. 10
Tenney Engineering Co. 63
Thermal Co., Inc. 92
Tinit Mfg. Co. 90

United Speedometer Repair Co. 95
Utilities Engineering Institute 83
Utility Thermostat Co. 92

Virginia Smelting Co. 6

Wagner Electric Corp. 57
Western Thermal Equipment Co. 83
White-Rodgers Electric Co. 17
Wilson Refrigeration, Inc. 93

Classified Ads

Rate: $2.50 for fifty words or less, 40 cents for each additional ten words or less.

FOR SALE—Refrigeration and Electric Business, Sales and Service; big territory, practically no competition. Well equipped shop. $3000.00 plus stock invoice. Box 565, Woodward, Okla.

POSITION WANTED — Refrigeration Service mechanic, age 37, married, wants traveling sales position with refrigeration parts manufacturer, preferably on the west coast. Have own car. Would also consider service position with west coast firm. Address Box AU-4, The Refrigeration Service Engineer, 433 N. Waller Ave., Chicago 44, Ill.

WANTED—Soda Fountain service manager, capable of taking full charge of regional service work and installations for Western manufacturer. Must be able to handle and train men and supervise invoicing. Compensation will be based on percentage of profits. Permanent career in long established, growing firm guaranteed to right man. Give full details, experience, and earning record in your first letter. Address Box AU-3, The Refrigeration Service Engineer, 433 N. Waller Ave., Chicago 44, Ill.

FOR SALE—Refrigerator, warehouse, prefabricated. 1800 cu. ft. 7' 6" high, 12' 10" wide, 24' 4" long. Sectionally wood-constructed, sheet metal covered, 5½" rock wool insulation. Two doors 33" x 77" x 6", with automatic locks. In good condition—at less than one third cost. R. M. Hamilton, Hamilton Refrigeration Service, Box 174, DeWitt, Arkansas.

CHARGING HOSES—All metal flexible armored cable construction, designed to withstand over 300 lbs. working pressure. Quantities of several lengths —includes 7" annealed copper tube on each end with cadmium plated flare nuts. Overall lengths: 24-inch—$1.45; 30-inch—$1.65; 36-inch—$1.95. Hose only with suitable solder ends at following prices:

7"—55 cents	10"—65 cents	20"—95 cents
8"—57 cents	11"—68 cents	23"—$1.01
9"—60 cents	19"—84 cents	25"—$1.10

Minimum order of $2.00. Send money order or check with order. Drake Refrigeration, 547 N. Drake, Chicago 24, Ill.

9 TO 1 CHOICE
OF SERVICE ENGINEERS

*When asked the question, *"What type and brand drying agent do you use?"* . . . 91% of the service engineers who specified a brand said . . . "DAVISON Refrigeration Grade SILICA GEL." This amazing fact was revealed in a survey of service men in all parts of the country.

This is a good time to follow the leader. Your jobber stocks Davison Refrigeration Grade Silica Gel . . . in factory-charged dehydrators and for refilling. ASK FOR IT BY NAME.

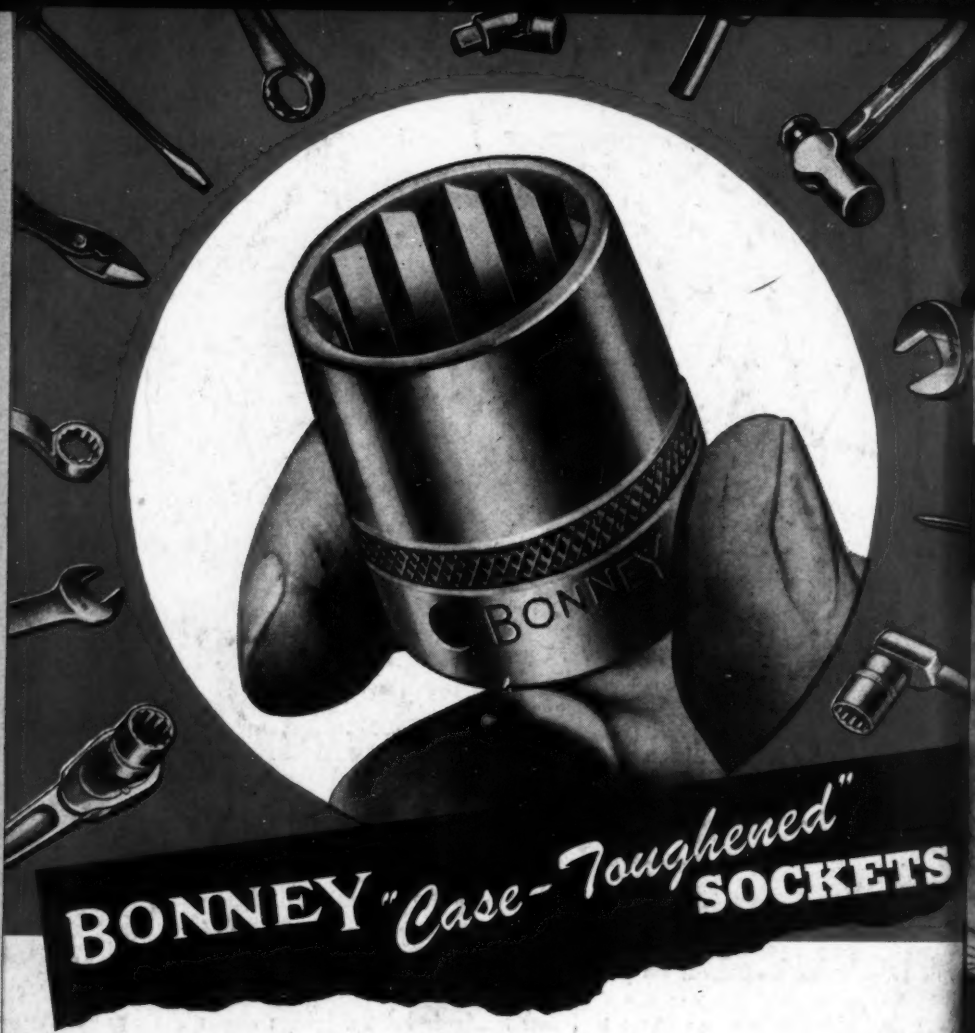
LOOK FOR THE CAN WITH THE BLUE LABEL

THE DAVISON CHEMICAL CORPORATION

Progress through Chemistry

BALTIMORE-3, MD.

Canadian exclusive sales agents for DAVISON SILICA GEL:
CANADIAN INDUSTRIES LIMITED, General Chemicals Division



BONNEY "Case-Toughened" SOCKETS

Sockets are the most used tools in a mechanic's kit because when used with various types of handles and attachments, they can do almost any nut-turning job. But inferior sockets are little better than nothing.

Sockets to be good must have just the right combination of hardness and toughness to provide longest wear and greatest strength. Bonney "Case-Toughened" Sockets provide just the right combination—hard enough to resist wear yet tough enough to resist breakage.

If you have not tried Bonney Sockets, stop in at your nearby Bonney Jobber and ask him to show you these long wearing Sockets that are the first choice of many mechanics.

BONNEY TOOLS

BONNEY FORGE & TOOL WORKS • 717 N. MEADOW STREET, ALLENTOWN, PA.

In Canada: Gray-Bonney Tool Company, Ltd., St. Clarens & Royce Aves., Toronto